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# ST. GEORGE'S HOSPITAL

## REPORTS.

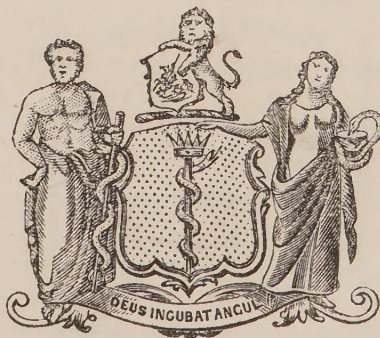
EDITED BY

JOHN W. OGLE, M.D. F.R.C.P.

AND

TIMOTHY HOLMES, F.R.C.S.

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# ST. GEORGE'S HOSPITAL REPORTS.

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## I. ON THE VARIATIONS OF THE ACIDITY OF THE URINE THAT OCCUR WHEN VEGETABLE AND MINERAL ACIDS ARE USED.

GENERALLY we may estimate the value of any physiological or pathological knowledge by considering its use in therapeutics. And we may also estimate the worth of our therapeutical knowledge by asking ourselves how much it rests on physiology and pathology.

In the grand future of medical practice, our knowledge of therapeutics will entirely cease to be specific, empirical, or tentative. It will become only rational, resting upon physiology alone.

What motions are going on in the body in health?

What modifications of excess or deficiency or variety of these motions constitute disease?

How do the forces which are fixed in the different matters we use in medicine affect the healthy motions which occur in the body?

As these questions receive an answer, our ideas regarding the actions of remedies in disease will reach that clearness which they will ultimately obtain.

Even in our knowledge of the uses of alkalies and acids we have as yet very little that is rational; that is grounded on physiology alone.



When an excess of acid is present in the stomach or in the urine, we know how alkalies act in neutralising the acidity; but we do not know what our alkalies do in increasing the motions that are going on in the blood and in the textures.

How far alkalies increase the oxidising actions going on in the blood and textures is an easier subject for research, and will therefore probably be determined by experiment before the amount of the variations in the quantity of oxygen used in different physiological and pathological states is investigated.

Animal chemistry will not have done its work until the variations of oxidation in different states of health and of disease are as well known as the variations of temperature, which are only one result of the variations of the chemical actions in the body.

Our empirical knowledge of the actions of alkalies may be summed-up in a few words. Alkalies promote the absorption of thickenings. Among these, the deposits of urates, of fatty matters, and of fibrinoid matters are most likely to be affected.

Many other actions must be produced by alkalies, and must be included in the general expression of increased changes of oxidation and nutrition. These must in their nature resemble (although in very different degrees) that visible action on the skin in which death is seen to be caused by the intensity of the chemical action on the living texture.

Our rational and empirical knowledge of the action of acids is not farther advanced than our knowledge of the action of alkalies.

There are two well-known physiological actions of acids. These are, the solution of the albuminous substances we eat by the acid of the gastric juice; and the solution of the phosphates in the urine by the acids of that secretion.

The rational medical use of the acids rests on these physiological facts. But the action of acids upon the urine in health is far from being well known. Hence doubts



arise regarding their action in disease. For example, it sometimes happens that when no acids exist in the urine, alkalies are prescribed; and the reason given for the prescription is, that the urine has been seen to become acid whilst the alkalies were taken as medicine.

With regard to the empirical use of acids in medicine no general rules whatever at present obtain; but the following summary shows the direction in which our knowledge is at present advancing.

All acids, mineral and vegetable, “appear to act as refrigerants, that is, in some way or other to diminish the preternatural temperature of the body in febrile states of the system.” When this is translated into chemical language it reads thus: all acids, mineral and vegetable, lessen the chemical motions going on in the body. If alkalies promote oxidation, then acids by neutralising alkali must retard oxidation.

The diffusive power of acids is great, and they must rapidly act on the phosphate of soda in the blood and textures; and according to the amount of alkali which they neutralise they must retard those changes which the alkali of the blood helps to produce. Thus acids become “antiphlogistics,” “refrigerants.”

Moreover, when formed or freed in the textures, acids may cause the partial stoppage of the chemical changes which are going on in the part where they occur. Thus gouty, fatty, and perhaps fibrinoid degenerations may arise; and if the excess of acid should stop all the chemical motions in any part, then the vital motions which are correlated to and dependent on them must stop also, and the local or general death of that part must be produced.

Not long since a positive statement was made to me regarding the effect of lemon-juice on the acidity of the urine. I was assured that occasionally it made the urine alkaline. I knew, from the analysis of lemon-juice,\* that

\* Without doubt, no two lemons contain exactly the same amount of organic and inorganic constituents. The citric acid, which constitutes the chief organic constituent, on an average exists to the amount of 32 grains (Garrod) in an ounce troy of juice. The inorganic constituents also vary. In

there was so little alkaline and earthy salts present in it, that they could not produce this effect; and I knew, from the variations that take place in the acidity of the urine in health, that most probably a result that was simply *post hoc* was considered as *propter hoc*. Moreover, I had an imperfect recollection, that many years ago I had made some accurate experiments, which I had not published, to determine what effect the lemon-juice had on the acidity of the urine.

After a long search, the notes of the experiments were found; and, as it may add to the interest of the observations, I shall compare the action of lemon-juice on the acidity of the urine with the action of dilute sulphuric acid and with tartaric acid. The details of the experiments with these latter substances are published in the *Philosophical Transactions* for 1849.

In order to determine the effect of the lemon-juice on the acidity of the urine, the following experiments were made.

For the purpose of comparison, the acidity of the urine was determined for twenty-four hours before any lemon-juice was taken.

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the *Quarterly Journal of the Chemical Society*, vol. vii. p. 44, there is an analysis of the ash of lemon-juice. This analysis of 200 lemons was made at my request at the College of Chemistry by Mr. H. Witt; and he thus gives the inorganic constituents of an ounce troy (480 grains of juice):

	grains.
Potassa . . . . .	0·767
Soda . . . . .	0·038
Lime . . . . .	0·131
Magnesia . . . . .	0·058
Sulphuric acid . . . . .	0·215
Chlorine . . . . .	0·022
Carbonic acid . . . . .	0·339
Phosphoric acid . . . . .	0·130
Phosphate of iron . . . . .	0·018
Silica . . . . .	0·010
	<hr/>
	1·728

The quantity of potassa present in an ounce of lemon-juice is therefore hardly sufficient to neutralise one grain of citric acid, and the whole (almost) of the lemon-juice may be considered as unneutralised citric acid and water.



	Quantity.	Specific gravity.	Degrees of acidity.*	Appearance after 24 hours.
<b>FIRST DAY.</b>				
Breakfast at . . . 8.50 A.M.	oz.			
Urine passed at . . . 8.50	12	1024.5	34	urates only
No lemon-juice . . . 10.30	2½	1027.8	26	"
1 P.M.	4	1026.4	11	"
Dinner at . . . 5.30	6	1028.3	41	"
11	7½	1032.7	20	urates and oxalate
	32			
<b>SECOND DAY.</b>				
7.10 A.M.	13	1028.5	33	"
Breakfast at . . . 8.50	2	1025.8	36	urates
Six oz. of lemon-juice (sp. gr. 1037.9) . . . 12.10	7	1029.4	alkaline from fixed alkali	phosphates
Six oz. of lemon-juice. 3 P.M.	3¼	1033.1	40	urates
Dinner at . . . 6.10	5½	1028.5	50	uric acid, urates
11.30	8½	1032.9	20	oxalate
	39¼			
<b>THIRD DAY.</b>				
7.20 A.M.	12	1026.6	32	urates
Breakfast at . . . 8.30	1½	1024.5	40	"
10.50	5	1024.9	12	oxalate
Six oz. of lemon-juice (sp. gr. 1038.4) . . . 12.20	2¾	1029.5	alkaline from fixed alkali	phosphates
Six oz. of lemon-juice. 3 P.M.	5	1030.5	38	urates
Dinner at . . . 6.20	7½	1025.7	45	uric acid, urates
11.20	6	1031.8	30	urates
	39¾			
<b>FOURTH DAY.</b>				
7.30 A.M.	19	1019.8	20	clear
Breakfast at . . . 8.30	2¼	1020.0	26	"
No lemon-juice . . . 11.25	6	1022.0	alkaline from fixed alkali	"
12.40 P.M.	2¼	1027.5	" "	phosphates
2.50	5½	1025.2	30	clear
Dinner at . . . 6.35	6	1024.6	32	"
11.45	9	1030.3	alkaline from fixed alkali	"
	50			
7.30 A.M.	21			
* Each degree of acidity corresponds to 1-12th of a grain of dry and pure carbonate of soda.				

These numbers are represented in Table I. by the undotted line; and in the same table, for comparison,

the variations of the acidity of the urine, when dilute sulphuric acid was taken, is set forth by the dotted line.

It is very evident that the natural variations of the acidity of the urine are so great as almost to hide the effect which even twelve ounces of lemon-juice in the day can produce.

Nearly 400 grs. of citric acid in the lemon-juice raised the acidity nine degrees higher than it rose on the previous day when no acid was taken, and uric acid crystals were found. But the decrease of acidity that occurred when food was taken was just as great on the day the citric acid was taken as it was on the day when no citric acid was taken.

When the lemon-juice on the following day was again taken, the rise of acidity was not quite so high as on the day previous; but uric acid crystals again formed in the urine, and the decrease of acidity after food was ten degrees less than at the same hour on the first day when no lemon-juice was taken.

On the day following those two on which lemon-juice was taken, no variations of the acidity of the urine occurred that could be attributed to the action of the lemon-juice.

The effect upon the acidity of the urine of this large quantity of citric acid in the lemon-juice is quite evident. But the natural variation of the acidity is less influenced by the acid than might have been expected; in other words, much less citric acid passed off by the kidneys than was taken into the stomach.

It is very apparent that the action of digestion far surpasses the action of large doses of lemon-juice on the urine. So much so, that if the urine had only been examined four hours after breakfast, its alkalescence might have been attributed to the action of the lemon-juice. And there can be no doubt that the statement, that lemon-juice makes the urine alkaline, arose from some observation of this kind.

The preëminence of the natural variations is also seen in the experiments on the variations of the acidity of the urine when full doses of sulphuric acid were taken, pub-



lished by me in the *Philosophical Transactions* for 1849. These variations are shown in the dotted line in Table I., and the contrast is there given between the variations for three days when no sulphuric acid was taken, and for three days when much acid was administered. The action of the digestion in causing variations of the acidity is seen to be far greater than the action even of three drachms of dilute sulphuric acid specific gravity 1107·7 when taken daily. And after this quantity was continued for three successive days, no decided increase of the acidity of the urine was perceptible.

In an appendix to the paper on the variations of the acidity of the urine in the *Philosophical Transactions* for 1849, I have given the variations of the acidity of the urine when tartaric acid was taken for three days. The first day the quantity was 84 grs. of dry and pure acid, the second day 108 grs., and the third day 162 grs.; and in Table II. I have represented these variations by the more coarsely dotted line, and contrasted them with the variations of the acidity of the urine when lemon-juice and when sulphuric acid were taken.

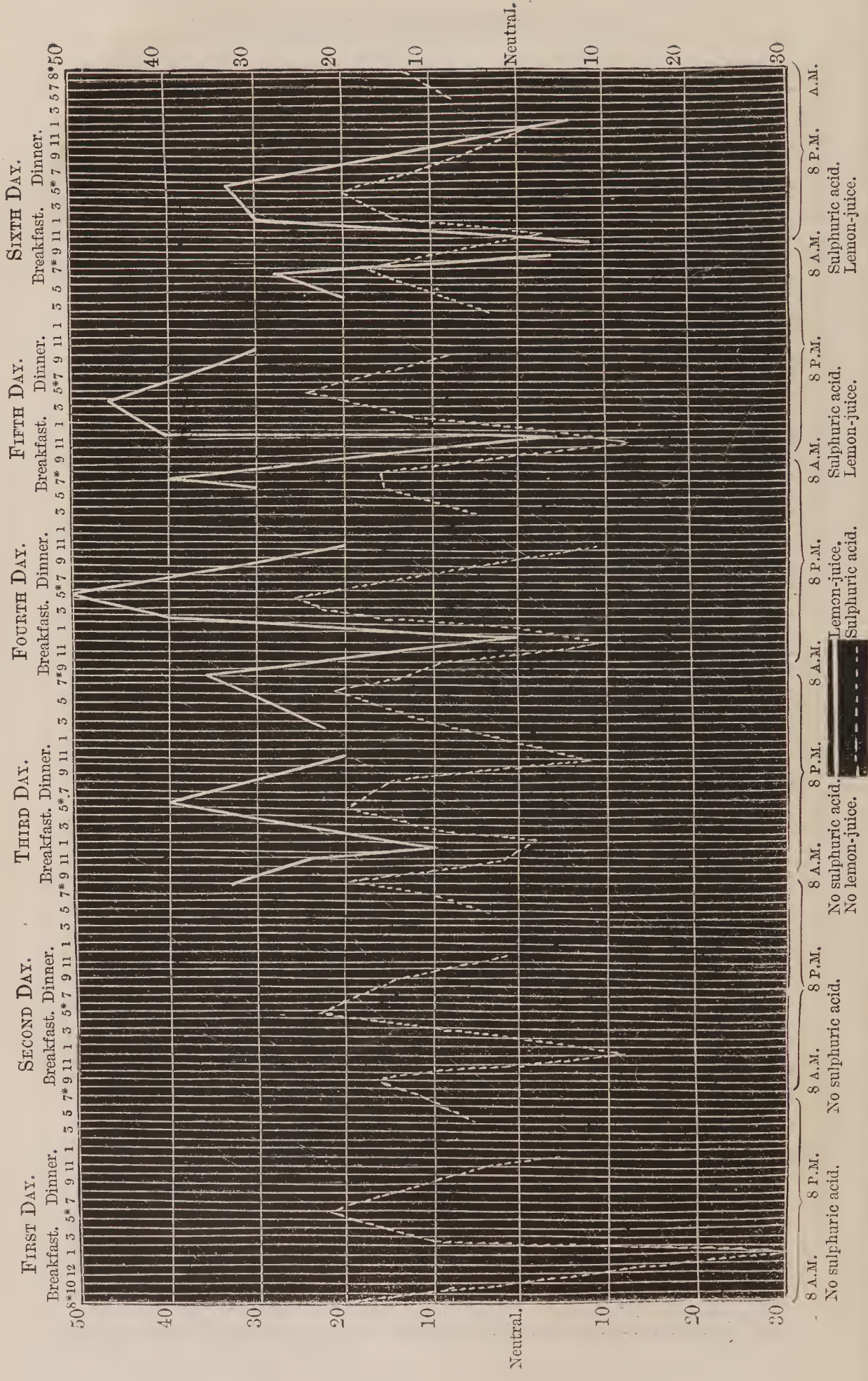
The result when tartaric acid was taken agrees very closely with the results when lemon-juice was taken, allowance being made for the difference in the amount of acid in the lemon-juice and tartaric acid, and for the average acidity of the urine being higher when the lemon-juice was taken than it was when the tartaric acid was administered.

The amount of citric acid taken daily in the lemon-juice was from two and a half to four and a half times more than the amount of tartaric acid; and from these experiments also it can be seen that a small portion only of the tartaric acid taken passed off in the urine.

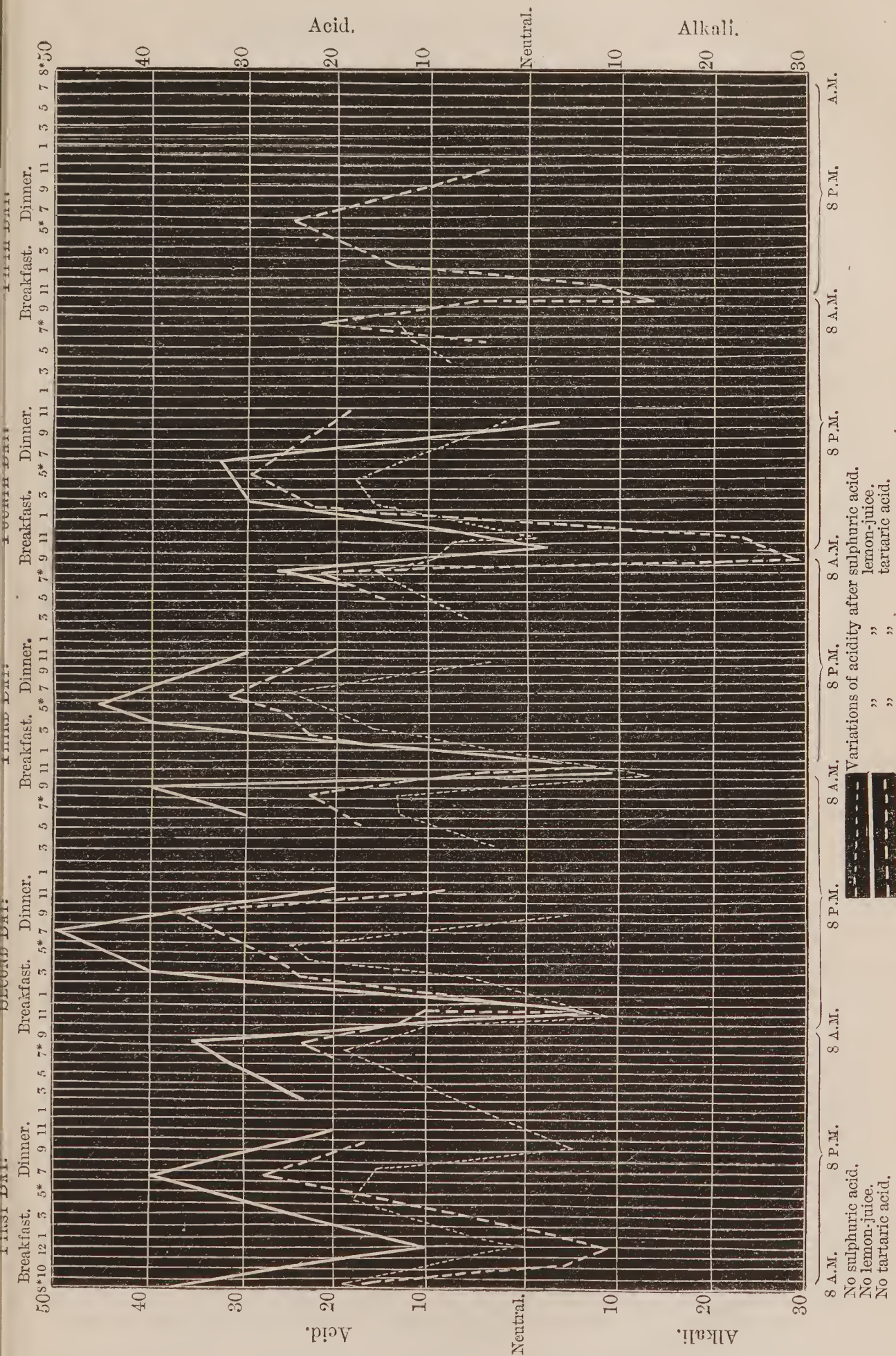
Generally, then, it may be said that lemon-juice and tartaric acid have the same action in increasing the acidity of the urine, and that neither of these acids, even when taken in very large doses, produces as much effect on the acidity of the urine as is produced by the action of digestion.

It is very desirable that a much longer series of exact experiments on the variations of the acidity of the urine

TABLE I.







when vegetable and mineral acids are taken in health should be made; and the effect of sugar and starch in increasing the variations of the acidity of the urine should also be determined. Then we shall have better reasons for some of our rules of diet than we at present possess; and we shall be able to use these substances with more effect as remedies. The contrast of a purely vegetable diet with a purely animal diet for a very short period in effecting variations of the acidity of the urine I have given in the *Philosophical Transactions* for 1849.

Generally in the treatment of ammoniacal urine, long courses of mineral acids have no distinct chemical effect upon the urine. Vegetable acids and sugar have also no immediate visible effect.

For good observations the reaction of the urine must be determined at a fixed period each day, at the time when the digestion is not going on; and the length of time that the urine has remained in the bladder must, as far as possible, not vary in the different experiments.

When accurate observations are made, it will never be found that lemon-juice, or any other free vegetable or mineral acid, can cause the urine to become alkaline; although, when there is an irritable stomach, the urine may frequently be found to be alkaline during digestion, even when vegetable and mineral acids are taken in large quantities.

H. BENCE JONES.



## II. A CASE OF ANGINA PECTORIS,

WITH REMARKS.

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THE subject of this paper was a gentleman forty-seven years of age, but having, even before his illness, a much older appearance. He was short, somewhat corpulent and high-shouldered, with a fair and florid complexion. He had blue and, naturally, very prominent eyes, with very large pupils, and had always been very near-sighted. The conjunctivæ were constantly thick and dirty-yellow. His habits, however, had always been temperate. His temperament was sanguine, but his temper was particularly mild. He was calm, also, and self-possessed in commercial difficulties or speculations, and had good practical abilities. His pulse was regular, but always feeble and slow; and in cold weather he had ever been subject to coldness of his hands and feet. His father lived to nearly eighty years of age, and died of bronchitis, to which all the members of the family were particularly subject; but none of them appear to have suffered from either rheumatism or gout. His mother had lateral curvature of the spine, and died at seventy-four of a disease which appears, from the description given, to have been a very inveterate form of diffused psoriasis, that rendered her a frightful spectacle. For several years before she was thus afflicted she suffered frequently and severely from what was said to be general rheumatism.

At the age of about twenty-seven or twenty-eight our patient had a long and very obstinate attack of jaundice, for which mercury was freely administered. Soon after his recovery he became the proprietor of an extensive factory, to the management of which he devoted all his energies, and which he continued to superintend even to the last day of his life. About eight or nine years before his death, he complained, during several months, of an

occasional severe "rheumatic" pain at the back of his neck and head, sometimes accompanied by dimness, or even momentary loss, of sight. These symptoms disappeared on abstaining from beer, and substituting a small quantity of wine. During the last few years of his life he seemed to enjoy almost uninterrupted health, and said that he felt himself to be a robust man. Indeed, only three months before his death, to amuse his children he danced and sang "the Cure" for several minutes, without feeling any particular shortness of breath or other inconvenience. His illness, apparently, lasted very little more than five weeks. It was the beginning of May 1866, when he first complained of occasional pain and distress about the chest and neck after walking some distance. These symptoms began on both sides of the chest, from which they extended upward to the clavicles and sides of the neck. Feeling tolerably well between the attacks, he attributed them to indigestion or the flatulence which he frequently experienced. In the course of a few days, however, they became not only more easily excited, but more extensive and severe. They were sometimes preceded, and always accompanied, by a feeling of faintness and suffocation. The patient described them as a kind of spasmodic and painful constriction of the thorax and throat, producing a sensation as if some one grasped him by the throat and endeavoured to strangle him. The distress was often so great, that he felt as if he should die if the paroxysm lasted long. From the sides of the neck and thorax the pain extended down the arms as far, at first, as the elbows, and then to the ends of the fingers, which were slightly but uncontrollably flexed. With his body inclined forward, and his head bent upon his chest, he would utter a low but almost continuous moan, while the expression of his countenance bore evidence of uncommon anguish. Yet soon after the paroxysm he appeared to be almost in his usual state of health. At this period of his illness he was seldom attacked unless he exerted himself by walking, or in some other way; but towards the end of May the paroxysms would often recur spontaneously, although he could sometimes walk slowly for a con-



siderable distance with impunity. In the intervals, also, between the attacks he became more subject to faintness, to flatulence, nausea, and occasional vomiting. Nevertheless, he was not much reduced either in strength or bulk; he had periods of seeming health, and even persisted, contrary to my advice, in riding to town to superintend his establishment. On the 15th of June he returned, about five o'clock in the afternoon, from town to his country house, without having experienced any remarkable inconvenience. I saw him soon after. Notwithstanding his recent sufferings, he appeared to be wonderfully well; and having given me an account of his feelings since my last visit, he walked with me gently about the lawn, and conversed upon other subjects. He then partook of a light meat dinner, and retired early to bed. About two o'clock in the following morning he was disturbed by one of his usual attacks of pain in the chest, accompanied by great nausea. Having got out of bed, he immediately vomited part of the food which he had taken at dinner, mixed with a quantity of acid fluid. The pain, notwithstanding, continued, and the vomiting recurred at intervals; until, feeling exceedingly faint, he called for a smelling-bottle, which he had scarcely applied to his nose, when he suddenly fell forward to the ground, and emitting a choking sound, struggled for a few seconds, and died.

In the course of the patient's illness a great number of remedies were employed. He took different kinds of antispasmodics and stimulants; occasional doses of mercury, with aperients; mineral and vegetable tonics; alkalies and mineral acids, opiates and iodide of potassium, with the use of derivatives and counter-irritants. But none of these appeared to have any great efficacy either in assuaging the severity of the attacks or in prolonging the intervals between them. Among those which afforded the most relief, and which he sometimes desired to have repeated, was a small dose of calomel combined with colocynth and assafoetida.\*

\* Dr. Clifford Allbutt informs me that he has produced wonderful relief from the subcutaneous injection of opium in angina, and diseases of the heart generally.

A post-mortem examination was at first positively refused, and the deep distress of the family prevented me from urging its importance. On the third day, however, I succeeded in obtaining permission to examine the thorax and abdomen. But the weather was hot,—it was in the middle of June,—and decomposition was far advanced. Soon after death the neck and shoulders became very much discoloured,—of a deep purple,—but now they were tinted with green. Beneath the skin the body generally was covered with a thick layer of fat. The heart was large, flabby, and pale, and almost entirely surrounded by a layer of fat, which was thickest over the right ventricle. This cavity was enormously dilated. Its wall was very thin and soft, and its muscular tissue was in great part replaced by molecules of fat. The left ventricle was also very much dilated, but with hypertrophy, or rather *thickening* of its wall; for, as in the case of the *right* ventricle, its muscular tissue was in a state of fatty degeneration. Both auricles, but particularly the right, were much dilated, and their walls were extremely thin. There were no clots in any of the cavities. The mitral and tricuspid, the pulmonary and aortic valves were all healthy; but immediately beyond, and all along the attachment of the latter, the inner surface of the aorta was raised into a transverse and convex eminence, which had a somewhat rough or uneven surface, and almost entirely obliterated the orifices of the coronary arteries. It was not, however, sufficient to cause any bruit distinguishable by means of the stethoscope. On cutting through it, and examining a thin slice under the microscope, it was found to consist chiefly of fibrous tissue, without any appearance of atheroma.

The coronary arteries appeared to be very small, but presented no traces of ossification. The lungs were very much congested, containing a large quantity of dark-coloured blood, but were not otherwise altered. The liver was of a lead-colour, from incipient decomposition. Its structure appeared to be normal, but, like the lungs, it was much congested. Both kidneys were healthy.

If an earlier and fuller examination had been permitted, I should have carefully ascertained whether any morbid



changes had taken place in the sympathetic nerves and ganglia which supply the heart, as well as in the pneumogastric nerves, and the medulla oblongata from which they arise. But post-mortem changes had advanced too far in these delicate structures to allow of any satisfactory investigation.

In this case neither the symptoms nor the post-mortem appearances differed very remarkably from those which are common in the graver forms of angina pectoris. Generally, however, the pain is felt more severely and sometimes *only* on the *left* side; whereas in this case it was equally severe on both sides. Moreover, the existence of extensive disease of the heart,—as there must have been for some time before the appearance of any striking symptoms, as well as the sudden manner in which these symptoms supervened on a seemingly healthy condition, are alike worthy of remark. But among the numerous cases on record, the heart and great blood-vessels have been found to undergo almost every morbid change to which these organs are liable; such as dilatation of the ventricles, either with hypertrophy, or, more frequently, with thinning, softening, and paleness of their muscular walls; depositions of fat on the external surface of the heart; ossification of the valves, of the arterial trunks, or of the coronary arteries; dilatation of the coronary veins; effusion of serum, blood, &c. into the pericardium or the cavity of the pleura. Occasionally, however, in well-marked cases of angina pectoris these parts have been free from disease, while a variety of morbid changes have been found in other organs and parts. It is not, therefore, surprising that great discrepancy of opinion should have prevailed at different times regarding the essential nature and proximate cause of angina pectoris. Accordingly the disease has been attributed, by different authors, to accumulation of fat around the heart; to a particular kind of asthma causing cramp of the diaphragm and other respiratory muscles; to the pressure of enlarged abdominal viscera on the heart; to a kind of syncope, caused by accumulation of blood in the cavities of the heart, from ossification of the coronary arteries. But while in certain fatal cases of angina pectoris

the organic changes above mentioned have been entirely absent, the same organic changes are commonly found to exist without producing the group of symptoms peculiar to this malady. Dr. Stokes considers it due to a weakened state of the heart; but unquestionably this state of the heart exists without the symptoms of angina pectoris. Others, with Latham, Walshe, and Lussana, believe that the whole group of symptoms and the cause of death are dependent on spasm of the heart, accompanied by neuralgic pain. Desportes,\* Jurine,† Laennec,‡ Chapman,§ and others, have regarded angina pectoris as essentially a neuralgic disease. Jurine believed that its proximate cause is an affection of the pulmonary nerves communicated to the cardiac nerves, and disturbing secondarily the action of the heart and great blood-vessels. Laennec thought that the primary affection is seated sometimes in the pneumogastric nerves, and sometimes in the cardiac portion of the sympathetic, and that the brachial plexus becomes implicated. This view of the proximate cause of angina pectoris has been materially supported by recent inquiries. M. Lancereaux reported an exceedingly interesting case, in which, among other lesions, he found, after death, disease of the cardiac plexus of nerves.|| The heart itself was healthy, but in the aorta, between the orifices of the coronary arteries, which were so much narrowed as scarcely to admit the introduction of a stilette, there was a prominent plate (*plaque saillante*) of several centimètres in extent, festooned along its borders, and composed chiefly of a new formation of connective tissue, having a finely-arborescent structure, and situated between the internal and middle coats. The external coat was extremely vascular, and the cardiac plexus which lies on this part of the vessel participated in the vascularity, while some of its filaments were included in a kind of plasma on the surface of the thickened external coat. On microscopic examina-

\* *Traité de l'Angine de Poitrine*. 1811.

† *Mémoire sur l'Angine de Poitrine*. 1815.

‡ *Traité de l'Auscultation médiate*. 1826.

§ *American Journal of Medical Science*, vol. vii. 1831.

|| "De l'Altération de l'Aorte et du Plexus cardiaque dans l'Angine de Poitrine," par M. Lancereaux,—*Gazette Médicale*, 1864, p. 432.



tion of the nervous filaments and ganglia, numerous round nuclei were found interposed in masses between the tubular elements, compressing them more or less. The medullary sheaths, or white portions of the tubules, were grayish and granular. A calcareous tubercle was found close to the point of recurrence of the left inferior laryngeal nerve, where it was adherent to the neurilemma. The aortic valves were somewhat thickened near their attached border. All the abdominal organs were healthy except the liver, which was rather fatty.

In two other cases of sudden death, M. Lancereaux found a similar lesion of the aorta, having the same position and characters, and giving rise to a decided narrowing of the coronary arteries. The cardiac plexus, although not examined, was probably involved in the disease. M. Lancereaux also states that he has twice met with this lesion associated with the rheumatic diathesis; once in a patient who smoked to excess, and once in a drinker of absinthe.

According to the latest researches of Bezold,\* the sympathetic nerve-fibres of the heart are partly contained in the cervical cord of the sympathetic, proceeding from the ganglia as cardiac nerves, and are partly derived from the brain, running through the cervical portion of the spinal cord to the inferior cervical ganglion, whence they proceed to the cardiac plexus. In a valuable and learned article on the pathology of the sympathetic in angina pectoris, recently published by Eulenburg and Guttmann,† the authors conclude from an analysis of cases, and from the experiments of Bezold, that the abnormal action of the heart in angina pectoris is due to the influence of the sympathetic on the ganglia of the heart; and as all the sympathetic fibres of the heart meet in the cardiac plexus, that this plexus is the medium through which the abnormal action is produced.

\* *Untersuchungen aus dem physiologischen Laboratorium in Würzburg.* Leipzig, 1867. 2 Heft, ss. 181, 368.

† "Die Pathologie des Sympathicus," von A. Eulenburg und P. Guttmann,—*Archiv für Psychiatrie und Nervenkrankheiten*, 1868-69, 1 Band, 3 Heft, p. 702.

Many of those authors who regard angina pectoris as an affection of the cardiac and other nerves believe that it originates in gout. Such was the opinion first maintained by Butler, Ritter, Macqueen, and more particularly by Dr. Chapman.\* Whether or not this opinion be founded on truth, it is quite certain that angina pectoris is often associated with gout or with rheumatism. I have now under observation a patient who has suffered for many years from frequent attacks of gout.

J. LOCKHART CLARKE, M.D.

\* *American Journal of Medical Science*, vol. vii. 1831.



### III. NOTES ON THE SUBCUTANEOUS INJECTION OF MORPHIA.

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FEW really important discoveries have glided so silently into every-day use as the subcutaneous injection of remedial agents. Slowly and surely this new method has won its way and established itself in the profession, until there are probably few medical men now to be found who cannot bear testimony, from their own experience, to the marvellous power of narcotics introduced beneath the skin. Yet the cases recorded are comparatively few, experimental, and, with some exceptions, destitute of information which might serve as a guide to their use in practice.

One or two cases only have been mentioned—none fully, so far as I am aware—where death has been the direct result of their administration; yet it is reasonable to suppose that there have been many such, and the particulars could not fail to be of the utmost value. The accumulation of cases is the only way by which, in the administration of drugs, the limits of use and abuse, of safety and danger, can be certainly defined; and it is all the more important where, by a new mode of exhibition, the most powerful remedies are rendered more powerful in their effects for good or evil.

I shall make no attempt to trace the origin or progress of the subcutaneous method.\* The names of Dr. Wood of Edinburgh and Charles Hunter of St. George's Hospital will, I suppose, always be associated with the "local" and

\* The following entry in Mr. Pepys' Journal, May 16th, 1664, may be of interest in connection with this subject: "With Mr. Pierce the surgeon to see an experiment of killing a dog by letting opium into its hind leg. He and Dr. Clarke did fail mightily in hitting the vein, and in effect did not do the business after many trials; but with the little they got in, the dog did presently fall asleep, and so lay till we cut him up." A case of narcotism following subcutaneous injection. Dr. Richard Rolland also, in a *Treatise on Neuralgia*, London, 1838, mentions having cured a case of neuralgia by inserting  $\frac{1}{16}$ th gr. of morphia in paste at four punctures over the deltoïd of the affected arm.

“distal” injections respectively; and there can be no doubt that their invention will rank hereafter with the greatest discoveries for the alleviation of human suffering.

It is to the operation itself, insignificant though it be, and certain effects which have been observed to follow the introduction of morphia by the subcutaneous cellular tissue, that I wish to direct attention, believing that in medicine, as in other matters, the minute points, for the most part overlooked and neglected, are those on which the totality of success depends.

*The syringe.*—In the choice of a syringe, I should prefer the screw; it has undoubted advantages over the simple piston, especially where large quantities of fluid are used; for by unscrewing the barrel, and removing such obstacles as blood-clot or crystals of morphia from the tube, a second puncture may often be avoided. I have found also that the steel points, kept sharp and well oiled, cause much less pain and less local irritation than the gold ones usually supplied by the makers.

*The solution.*—Whatever the salt may be—whether acetate, meconate, or muriate of morphia—it is, I believe, of the utmost importance that the solvent should be water, and water only. When thus used, it has never, in my hands, produced the slightest suppuration or inconvenience; whereas the solutions prepared with acetic acid, and neutralised as recommended by the Committee on Hypodermic Injection, Charles Hunter, and others, have as invariably been attended with present smarting and prolonged tenderness of the punctured part. The strength of the solution must vary with the dose. For ordinary use, perhaps gr. iij. of the acetate to ʒj. of distilled water is the most convenient form, giving a commencing dose of m̄ij. to iv. or possibly v. It is wholly dissolved at the ordinary temperature, absorption is gradual, and effects can more easily be noted than when a concentrated solution is employed. In large injections, gr. vj. to ʒj. of the muriate\*

\* The muriate will be found preferable to the acetate for strong solutions. It readily dissolves with heat; whereas I have found the precipitate thrown down by a strong solution of the acetate on cooling, to be quite insoluble when heated without the addition of acetic acid.



would appear to be the practical limit in distilled water. I have tried gr. viij. to the 5j. of heated water, where the dose was gr. ijss., and the operation in consequence took some time; but the salt crystallised too quickly, notwithstanding that a hot-water bottle was placed in contact with the syringe, and every precaution was used to maintain the requisite temperature.

*The place for puncture.*—The battle of “distal” and “local” injection is still being waged; and I would refer those who are curious on the subject to a paper by Charles Hunter in the first volume of these *Reports*, and to a valuable paper by Dr. Anstie in the first number of the *Practitioner*. There can be no question, however, as to the efficacy, and in some cases the advantage, of distal injection for local pain.

Cases may occur in which the immediate application of a narcotic is indicated; but my experience would lead me to avoid it, as I should the application of a blister in the neighbourhood of an organ acutely inflamed. Not only is it apt to increase local irritation at the time, but the puncture of a tender part is naturally dreaded by the sensitive and nervous; and an attack of hysteria or faintness may complicate what would otherwise be a simple and successful operation. Where the whole body is open for selection, the dorsal surface of the arm and forearm has seemed to be least sensitive to pain; and after these, the outer side of the calf. Hunter recommends the palmar surface of the arm; but individuals differ much. In one case, where repeated injections of the arm and forearm had been made without any serious inconvenience, punctures in the thigh were invariably followed by local pain and subsequent irritation of the glands in the groin—a result which would seem to have been produced by the introduction of distilled water alone into this portion of the body.\*

The place selected for puncture should not be too low on the forearm, or too near a joint, as the sheaths of the tendons are liable to become irritated, and much stiffness and pain may be the result.

\* *Report of the Committee on Hypodermic Injection.*

*Modus operandi.*—It is extraordinary how nervous even sensible people become at the sight of preparations for what they may be assured is a mere prick. Faintness and a feeling of nausea, due to this cause, are not uncommon; and it is possible that, in some cases, the great prostration which has followed the injection of very minute quantities of morphia may have had its predisposing cause, at least, in a careless display of previous manipulation. For this reason, among others, the administration of ether-spray has seemed to me inadvisable. Much may be done by keeping all preparation out of sight, and distracting the attention up to the moment of puncture.

A fold of skin having been raised between the finger and thumb, the point should be introduced steadily and quickly—not by a sudden prick or corkscrew movement—taking care that the whole thickness of the skin is penetrated, and that cellular tissue has been reached. The injection of a large quantity of fluid beneath the skin is usually attended with an angry-looking swelling, which has seemed beneficial in relieving the pain and tension at the punctured part, and need give no alarm, provided the solvent employed is of an unirritating nature, and no air has entered with it.

On withdrawing the tube, however small the injection may have been, it is advisable to secure the puncture with a piece of court or other plaster. In this I find myself opposed to Dr. Anstie (*Practitioner*, No. 1, p. 24); but cases have occurred in my own practice where much of the solution has oozed out from lack of this simple precaution.

When introducing the fluid, especially in an untried case, it is of the utmost importance to inject slowly. As the morphia enters drop by drop, the results of each turn of the piston can be noted on the pulse, the pupils, the stomach, and the nervous system generally. The most deadly faints I have seen were undoubtedly caused by too rapid absorption of the narcotic, either from hurried injection or from the accidental injury (?) of lymphatics, which became inflamed, and resembled raised cords on the surface of the skin. In these latter cases the effects were invariably sudden and severe.



In first cases I have usually allowed from three to five minutes to each minim of the solution (gr. iij. ad 3j.), pausing at the first intimation of nausea, faintness, or marked alleviation of symptoms. With these precautions, I have never, in some thousands of injections, met with any ill effects that a glass of brandy-and-water did not quickly relieve.

The great importance of slow injection has been impressed on me more particularly by a case in which large quantities of morphia were used; and the first few drops, if rapidly introduced, invariably caused a nausea, which soon passed off; the large residuum could then be injected quickly and with safety; whereas an increase during the nausea would induce most threatening symptoms of prostration.

There are, however, cases of idiosyncrasy, and they must be borne in mind, where opium in any form and dose produces its depressing effects, to the exclusion of all others. A good instance of this kind occurs in Dr. Harley's admirable work on *The Old Vegetable Neurotics*, where one-seventh of a grain of morphia injected for neuralgia in an excitable woman æt. 40, produced at forty minutes symptoms resembling intoxication; at two hours oppression of the chest, faintness, vomiting, irregular pulse, and other symptoms of intense depression, which did not go off for four hours; but, it is added, six drops of laudanum by the stomach had always made her faint and sick. Another case may be quoted from the *Report of the Committee on Hypodermic Injection* (p. 78), where the injection of a quarter of a grain of morphia was followed in five minutes by sinking at the heart, inability to stand, and repeated attacks of syncope (without any pulse), with the most urgent symptoms of prostration, which were only relieved by stimulants and galvanism. Unfortunately the rate at which the injections were made is not noted in either instance.

It is impossible to judge, without a trial in each individual case, whether the excitant or depressing effects of morphia will predominate; and so strongly impressed is Dr. Harley by the dangerous uncertainty in first injec-

tions, that he considers morphia should never be injected alone, unless there is reason to know that the patient will experience no ill effects. It should always, in his opinion, be combined with one-ninety-sixth of a grain of sulphate of atropia, which he has found to counteract the depressant and nauseating effects of the simple drug.

My own experience of this combination is, as yet, too limited to enable me to speak with confidence on the point; but in one case where it was tried, even the one-ninety-sixth of a grain of sulphate of atropia produced such dryness of the fauces, and general irritability of the nervous system, that it had to be discontinued. There was probably some peculiar susceptibility to the action of belladonna, for one-fortieth of a grain injected on a previous occasion had produced most violent delirium, and distressing feelings of suffocation and oppression.

The excitant action of morphia has been shown to be more frequent in women than in men (Harley's *Vegetable Neurotics*); and it will be well to act always on this presumption.

*Dose.*—The initial dose must of course be graduated according to the individual and the nature of the disease; but it appears to have been dangerously large in most of the recorded cases—a quarter, a third, one, and even two grains are spoken of; and it is little wonder that depressing and even fatal consequences have been the result in some instances. My own experience leads me to agree entirely with Dr. Anstie, that a quarter of a grain of morphia is, as a rule, an unsafe dose to commence with. In a neuralgic case, given by Mr. F. Woodhouse Braine (*Medical Times and Gazette*, Jan. 4th, 1867), one-third of a grain of morphia injected over the insertion of the deltoïd caused dangerous symptoms in fifteen seconds; no mention is made of the rate of injection. In a case of mania, half a grain proved fatal; and a similar dose narcotised another patient for four days. Dangerous symptoms have also been found to follow the injection of a quarter of a grain (*Report on Hypodermic Injection*, p. 78).

*After-effects.*—The period of absorption is stated by the Committee on Hypodermic Injection to be from four to ten



minutes; but it is often much shorter. One case has been mentioned above, in which symptoms followed in fifteen seconds; and I have found that commencing relief from pain is usually perceived in three minutes, if a sufficient quantity of the drug has been introduced at once. On the other hand, after repeated injections, the matting of the cellular tissue may so far impede absorption that the effects are not perceptible under at least half an hour.

It may be well to give briefly the physiological effects which are recorded as following the injection of morphia beneath the skin.

There is—I. *The period of excitement*, lasting for some twenty minutes. Acceleration of pulse, six to fifteen beats. Dizziness, headache, nausea. Rise in temperature very slight. In one case I found no change within thirty minutes after the injection of two grains; in another, as little as three-twentieths of a degree Fahr., the thermometer being held beneath the tongue during that time. Burning heat of the face, and general glow of warmth passing into profuse perspiration. Contraction of the pupils.

To these may be added the following, which I have not seen described elsewhere:

The feeling of a sudden rush to the stomach, almost immediately upon the injection of the first drop, is very marked in some cases, and may not unfrequently account for some of the nausea complained of. From the stomach a feeling of relaxation and warmth, not unpleasant, passing to the extremities.

Among the rarer accidents may be mentioned a sudden and localised attack of urticaria. I have met with it twice; and at first it was sufficient to cause some alarm. The injection (morphiæ muriat.) was only just commenced, when the patient screamed out—seized his throat with both hands, evidently in extreme pain—and it was some little time before I could get him to explain the cause of his suffering. The neck, hands, and feet became of a brilliant red, with whitish wheals, as if stung by nettles; and the pricking was described as intense. This soon passed away, and the remainder of the morphia was injected without further inconvenience. On another occasion, two symme-

trical spots, of the size of sixpence, on either palm, were affected in a similar manner; and the marks remained for many months to attest the reality of the irritation.

II. *Period of depression*.—Retardation of the pulse from four to twenty beats or more, in some cases without any previous acceleration.

I have frequently noticed a small wiry pulse fall at once after the injection some fourteen to eighteen beats; whilst the impulse at the same time became soft, full, and compressible. Respirations diminished about eight in the minute. Fall of temperature in some cases as much as 8° Fahr. Profuse sweating; sometimes dryness of the throat; drowsiness; sleep.

Itching of the skin, especially at the side of the nose, is a common result of morphia injection; so also are difficult micturition, lasting some hours, and intense thirst; which I have not seen noticed; although they are sometimes sufficient to cause inconvenience, and even alarm to the patient and his friends.

*Injury to the skin*.—Where puncture of the skin has given after-trouble, this is generally due to the acidity and irritable character of the fluid injected. When water alone is used as the solvent, such accidents rarely, if ever, occur. The skin soon recovers itself, and only after repeated injections becomes more vascular and more sensitive. Continued irritation causes a troublesome matting of the areolar tissue, and less space is left for the fluid to spread beneath the skin; but in spite of this, I have in one case\* made upwards of 1500 injections, almost exclusively in the arm and forearm, without the occurrence of any serious inconvenience either from the punctures or the quantity injected, which at one time amounted to five and a half grains (gr. vj. ad 5j.) of the muriate daily, at two injections.

*Indications for the injection of morphia*.—The most important question connected with the subcutaneous injection of morphia is, when to use it. Are all other modes of administering the drug to be abandoned in favour of

\* Epileptic neuralgia, supposed to depend on tubercular disease of the brain.



this? There can be no doubt of its many advantages over every other method, as far as physiological and therapeutic effects are concerned; for when morphia can be borne at all, it can, *à fortiori*, be borne when injected in reduced quantities beneath the skin; and the good effects are more marked and more lasting, whilst the attendant evils are reduced to a minimum. Still, there will always be obstacles to its universal adoption. Patients will often prefer a large amount of dosing to the slightest physical pain, and to these the prick is an insuperable objection; but the most formidable drawback will always be the skilled manipulation which it requires; for although, in a long illness, a nurse, or even the patient himself, may be trained to inject the morphia with due accuracy and precautions, the small syringe cannot safely be trusted in untried hands, and the presence of the medical attendant is, in the majority of cases, indispensable.

But setting aside the choice of methods, and confining our attention to the hypodermic injection, what are the indications for its use, and what for avoiding it? There are perhaps few cases of pain where it cannot be used tentatively in the way I have described; but reliable data on this point are sadly wanting, and those who have had most experience will consider well before introducing morphia where pain is referred to the brain or its membranes. There are undoubtedly cases in which its administration is fraught with the most imminent danger, and a death immediately succeeding the injection is regarded with much suspicion by the friends of the patient. The condition of the brain, as ascertained by symptoms, must in general decide whether morphia is to be withheld or injected; and there are probably few who would venture where inflammation or congestion of the brain had been made out to exist.

Charles Hunter recommends it in acute mania and insomnia generally. Dr. Lockhart Robertson has used half a grain of morphia every four hours with advantage in cases of acute asthenic mania, and one grain for an initial injection in melancholia.

Dr. E. Fox of Bristol has used one grain five times

daily for weeks in the same disease. Delirium tremens has been treated successfully; and in the spanæmic condition of brain found in epileptics the morphia acts like a charm, subduing the pain of epileptic neuralgia, and postponing, if not preventing, a convulsive seizure.

The wiry pulse at the wrist and in the carotids becomes soft and full, and the painful feeling of constriction about the glottis is at once relieved.

In sea-sickness (*Medical Times and Gazette*, April 10, 1869) and in the sickness of pregnancy, the injection of morphia has given great relief. I have also found it useful in checking the violent retching and pain of a bilious attack, whilst other remedies were acting more immediately on the offending organs. Violent and distressing hiccough, which had lasted for more than twenty minutes, was at once stopped by a small quantity of morphia.

From the known action of opium, much benefit would naturally be expected from the injection of morphia in painful spasm, whether of the bowels, the ureters, or the gall-ducts. In colic, intussusception of the gut, passage of gall-stones (*Medical Times and Gazette*, August 17, 1867), and of calculous matter from the kidney, relief is usually prompt and effectual. One case of the latter I may mention. A gentleman was seized with rigor, nausea, and intense lumbar pain, just as he was about to sit down at a dinner-party. Morphia and a syringe were fortunately at hand, and one-fifth of a grain was at once injected into the forearm. Complete relief followed in three minutes; the patient ate a hearty dinner, passed a comfortable evening in the drawing-room, and I promised to call and see him next day. In the morning he had slept well, felt perfectly comfortable, and produced with evident satisfaction a small calculus (mulberry with phosphatic shell) which had passed with the morning urine.

For neuralgias generally, tic, lumbago, sciatica, the injection of morphia is now all but a specific. Relief is always speedy, and not seldom permanent. Possibly, in cases of this class, the addition of atropine to the morphia, as recommended by Dr. Harley, may increase the chances of a permanent cure.



A paroxysm of gout has been relieved in Dr. Leavitt's hands (*Ranking's Abstract*, vol. xlvii. p. 24) by one-third of a grain of morphia. So also have the lancinating pains of acute pleurisy. I have found it of great temporary benefit in painful rheumatic joints (chronic), and where calculus has been impacted in the kidney. Rest and ease, though it be but temporary, are no mean results to promise a worn and enfeebled sufferer; but where all hope of cure is past, and our only endeavour is

“To ease the victim no device can save,  
And smoothe the stormy passage to the grave,”

in scirrhus of the breast or of the uterus, no alleviation is at once so certain, so lasting, and so welcome, as that derived from the subcutaneous injection of morphia.

The superiority of injection over administration by the mouth is nowhere more marked than in those cases where prolonged suffering necessitates the constant use of morphia over months or years. In the case of epileptic neuralgia before alluded to, in which, for two years and eight months past, almost every respite from pain has been won by morphia subcutaneously injected, the only real inconvenience, and that of recent date, is a troublesome constipation, due probably as much to the torpid habits and heated rooms in which life is passed as to the special action of the drug.

In conclusion, I will venture to repeat three points on which, insignificant though they seem, I should wish to lay special stress:

1. That the solvent for the morphia should be distilled water without any admixture of acid.
2. That the initial dose should be much smaller than that usually given.
3. That the injection should be performed slowly.

With these precautions, morphia may be introduced into the system safely, and for indefinite periods, with but slight disturbance of the bodily functions.

I cannot close this very imperfect notice of morphia injection without expressing my opinion that the subcu-

taneous exhibition of drugs is the greatest boon given to medicine since the discovery of chloroform; and, judging from some experience as far as morphia is concerned, I would part with every drug in the Pharmacopœia sooner than relinquish a power of relieving pain at once so prompt, so safe, and so easy of application.

EDWARD T. WILSON, M.D.



#### IV. ON RHEUMATIC PERICARDITIS.

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IN the treatment of disease there are two problems which require to be solved before the physician should proceed to estimate the effect of drugs: he must first assure himself of the disease presented to his notice; he ought also to be acquainted with the course that form of disease is likely to follow. From the earliest ages of medicine observations have been directed to the ready solution of the first difficulty; it is only in modern times, through the means of large hospitals, that any adequate number of facts could be brought to bear on the determination of the second.

On looking back at the numerous and now effete remedies proposed for various diseases, it is evident that there has been a disposition to regard diseases as likely to run an unfavourable course without the intervention of art; and while favourable results were attributed to the virtues of the physic, all others were supposed to belong to the vicious constitution of the disease or of the patient.

Probably this method of determining the effect of treatment arose from the desire to possess the power of healing; it has certainly been fostered by the superstition, too often exhibited by the patient, which looks for cure from some potent remedy, and scarcely suffers him to get well without the use of drugs.

In determining the representative course of a disease, there are two ways which may be adopted: one is, to observe its course when no medicine is given; the other is, to watch its behaviour under various modes of treatment.

The first method, which is the simpler, cannot often, except under special circumstances, be put in practice; the second, which is more complicated, demands a larger number of examples; but if the patients are in other respects under similar conditions, then, if a certain typical course be observed in a number of cases, or supposing

that there is a tendency to variation with or without reference to the mode of treatment, it is possible to form some estimate of the effects of physic on that disease.

In hospital patients certain similar conditions are observed with respect to careful tending, both by physicians and nurses—good food and ventilation; variations being shown in the treatment adopted. Some, perhaps, may think that individual modifications are so numerous and complex as to render observations of this kind nugatory. To this objection I would answer, that though subdivisions into groups according to the previous habits and constitution of the individual can be recognised, experience of acute disease has led me to believe in a similarity of symptoms, &c. rather than in individual variations as numerous as those shown in a tree and its leaves: without denying their existence, I must confess that I cannot appreciate them; and it is difficult to understand how we are to arrive at a knowledge of the course of a disease if these imponderable differences are to be put in the way.

As some contribution to the history of rheumatic pericarditis, having collected all the cases of this form of disease which have come under my notice in this Hospital during the last four years, and those that are recorded in the Post-mortem Books during the last twenty-four years (171 cases in all), I have made such deductions as seem warranted by a comparison of these statistics of life and death, keeping the two distinct, that the one might corroborate or check the other.

The diagnosis of this disease has been rendered comparatively easy by the use of the stethoscope, and an educated ear can define with some precision the beginning and end of the disease; or, at least, the same landmarks may be taken to limit its duration. It must not be understood from this that auscultation alone is to be depended on; the aspect of the patient and the condition of the pulse must correspond in confirming the interpretation of the sounds conveyed to the ear, or there will be risk of mistaking the stage of friction, of misinterpreting a patch of old lymph, a rough double murmur, or the action of the heart on a distended stomach.



In severe cases of pericarditis the aspect of the patient is very characteristic: at first the countenance is anxious and expressive of much pain; a horizontal position is assumed, the shoulders being as low as possible, the head and neck bent at an angle, and supported against the pillow; the cheeks are flushed; scarcely any movement is made, the arms lying close to the body, the patient being flat on the back.

As the disease progresses and effusion takes place, the face becomes worn, the countenance oppressed and more anxious, the eyes are deeply sunk, and marked all round by dark colour, the skin has a tallowy look, the lips are pale, and frequent and profuse perspiration stands in drops on the face: if the amount of fluid in the pericardium is large, the breathing is hurried, the heart's action hampered, the lips have a slight blue tint, and the patient obtains ease by propping himself with pillows. As the fluid is absorbed, the face shows signs of relief; the tallowy look and the blue tint give way to a healthier colour; there is less apathy and more movement; the patient becomes more cheerful, and after a time assumes his natural colour and appearance.

The initial pain is so constant a symptom, that I find some difficulty in understanding the opinion expressed by Jaccoud in his recently published lectures on this subject; a small surface of the pericardium, however, may suffer without any apparent distress. The description just given refers only to those cases in which the whole or a great part of the membrane is inflamed.

It is evident, from the death records, that the pericardium may suffer in different extents of surface; the following table shows this:

Cases in which the whole of the pericardium was diseased . . .	94
Complete adhesion was found . . . . . in	61
General covering of lymph . . . . .	24
With effusion. . . . .	8
General thickening . . . . .	1
Cases in which a portion only suffered . . . . .	38
Partial adhesions were found . . . . . in	16
Partial lymph . . . . .	5
Patches of lymph and membrane . . . . .	17

Cases of milk-spot have not been included in this list; for, as Dr. Wilks observes, the patches due to rheumatism are generally irregular, and at the base or apex of the heart; while the attrition-patch is in the most prominent part of that organ. Those that ascribe the milk-spot to rheumatism must believe that the most frequent result of rheumatic pericarditis is perfect recovery, or that a very small extent of the membrane suffers in a large number of cases. This is contrary to the results of the clinical cases that have come under my notice, as far as I have been able to detect the disease; for I find that it is the rule for the whole or a great part of the membrane, the exception for only a small extent, to be inflamed. If the milk-spot be due to attrition, then it follows from the above list of cases that if the pericardium suffers from rheumatic inflammation, the rule is for the whole membrane to be diseased, and complete adhesion is the most frequent termination. There seems, then, to be more chance of meeting with uniformity of action and result than in inflammations of organs that are as a rule partially affected.

On looking over all the cases of painful diseases of the joints, including all forms of gout, osteo-arthritis, and rheumatism, I find the total number of cases admitted for the last four years is 1190. This number is given, because many cases would be found among them which probably no two physicians would return under the same name. Of this number, 266 were instances of acute rheumatism; out of this number, 43 were attacked with pericarditis, or 16 per cent.

This proportion was found to vary in different years. In each of the years 1865 and 1866 the proportion was 12 per cent; in 1867 and 1868 it was 19 per cent.

The ages most liable to this disease are different for the two sexes. I have tabulated all the cases from the Post-mortem Books, calculating with such probability as the history allowed the age at which pericarditis occurred. From these calculations, it appears that women are extremely liable during the age of puberty, viz. between the ages of 13 and 20. Out of 46 cases, in 25 it occurred



between these ages. The earliest age at which there is an instance given is 9; the oldest, 50.

In men, the liability is extended over a longer period, and more evenly distributed: out of 57 men, only 15 were attacked during this period (13 to 20). These results closely correspond with the numbers obtained from tabulating the clinical cases: out of 18 women, 10 were attacked between 13 and 20; out of 23 men, only 5.

The average age at which pericarditis occurs was found to be, for a woman, 19; for a man, 25. Far the greater number of cases are attacked before 30, and in this proportion: 43 to 57 men; 40 to 46 women.

The cases have also been tabulated for the purpose of finding whether there is more liability to this complication during a first attack of rheumatism or not; and it was found to occur as follows:

In first attacks of rheumatism there were cases of							
pericarditis	.	.	.	.	.	.	25
second	.	.	.	.	.	.	13
third	.	.	.	.	.	.	2
fourth	.	.	.	.	.	.	1
sixth	.	.	.	.	.	.	1

The period in the course of the disease at which this affection is most liable to occur is another point of interest. Out of 28 cases in which the date could be ascertained, it was found that pericarditis came on

In 10 during the first week.

16	„	second	„
6	„	third	„

Between the fourth and tenth days it occurred in 19 cases, and the favourite days were the ninth and tenth. Pericarditis may, however, precede the joint-mischief, or follow it after some interval.

In the present state of knowledge, the selection of pericarditis of certain cases of rheumatism is mysterious, and yet it is very improbable that the selection is haphazard. Peacock finds, from a number of cases, that pericarditis selects those cases of rheumatic fever of slight severity, while endocarditis is chiefly met with in the

more intense cases. Observations induce me to believe that there are at least two different forms of rheumatism which pericarditis selects: one is that form of extremely painful rheumatism in which the fibrous structures of the joints are chiefly involved, without much external sign as indicated by redness and swelling. This form, I think, is generally found in women—in thin, worn, cachectic, pallid, weak, nervous individuals, who have been over-worked, harried, or under-fed. The other form is that which occurs in florid, corpulent, over-fed individuals, more frequently in men than in women, and resembles in many respects an attack of sthenic gout.

From certain points of similarity, I was led to think that this form of rheumatism might be nearly allied to gout, or even a connecting-link between the two diseases; but as I have never been able to find any traces of uric acid in any cases, it may be considered as genuine rheumatism.

In this form there is considerable pain, redness, and swelling, affecting most of the joints more or less, but especially the small joints of the hands and feet, and the insteps; often accompanied by œdema, the veins being much distended, and the colour of the inflammation of a purple hue, closely resembling that of acute gout. This form, found generally in the robust and corpulent, may often also be seen when persons of advanced age are attacked. If this form of rheumatism be excluded from consideration, then I should be inclined to agree with Dr. Peacock in finding pericarditis preferring cases of rheumatic fever with slight external evidence of joint-mischief.

For some time I employed the thermometer in cases of rheumatism, in hope of discovering some indication from its use for the preference of pericarditis; but I have been unable to find that any help is given by this instrument. The temperature was not found to be influenced to any available extent by the presence of this complication; and cases of rheumatism without pericarditis have been found to show as high a temperature as cases with pericarditis. It must be borne in mind that fallacies may

arise from the frequent occurrence of pneumonia in acute rheumatism, and especially in cases of rheumatic pericarditis. This complication has a very decided effect in raising the temperature, and is frequently overlooked because of the difficulty of thoroughly examining a rheumatic patient.

Of complications associated with this form of pericarditis, valvular disease must be considered as the most frequent. The following table shows in what proportion the several valves were found diseased in conjunction with some form of pericarditis :

Mitral and aortic valves . . . .	in 47 cases.
Mitral alone . . . . .	34
Aortic alone . . . . .	8
Aortic and tricuspid . . . . .	2
Aortic, mitral, and tricuspid . . . .	1

The valves were found perfectly healthy in 24.

In the cases under observation during the last four years, the duration of pericarditis has been calculated from the time at which distinct friction was first detected to the time when it ceased to be audible, with or without the interval of effusion. Usually there is an intermission of this sound, and a subsequent return; but friction may be heard throughout, even after effusion has taken place. The preliminary stage, indicated by increased action of the heart, by its irrhythmical sound and murmur of inflammation, is more difficult of recognition, and may precede the friction-sound by many hours: this period has not been included in the calculation. The place at which friction is first heard depends on the locality attacked; generally it is found between the third and fourth ribs, to the left of the sternum; often it may be found over the sternum, sometimes at the apex, and occasionally between the second and third ribs. Pressure with the stethoscope, and alteration of the position of the patient, give most satisfactory proof of the nature of the sound.

In this Hospital cases of acute rheumatism are now, and for some years have been, treated with large doses of the alkalies, after the method recommended and suc-



cessfully carried out by Dr. Fuller. In many of the cases that supply the statistics of this paper other treatment has been adopted: for example, cases have been treated with

1. Venesection, with calomel and opium.
2. Calomel and opium.
3. Alkalies.
  - a. Alkalies alone  $\left\{ \begin{array}{l} \alpha. \text{ in full doses.} \\ \beta. \text{ in small doses.} \end{array} \right.$
  - b. Alkalies with calomel and opium.
  - c. Alkalies with opium.

1. During the time that venesection was employed in this Hospital for the cure of rheumatic pericarditis many more cases terminated fatally than now, and in a manner that showed the pernicious effects of the treatment adopted. Twitchings of the muscles, subsultus, fits of convulsions, universal tremors, frequent syncope, sloughing bed-sores, abscesses, and other symptoms not belonging to pericarditis when not treated in this manner, are always recorded as the precursors of death. I suppose further arguments against the use of frequent venesection are now unnecessary; one remarkable and beneficial result, however, should be noted. In the cases treated with venesection, though they terminated fatally, it is usually mentioned that great relief from the pericardial pain was at first experienced by the patients. The same result is found to follow the use of local bleeding; and this evidence in favour of applying leeches in the early stage of pericarditis seems to me to be very strong.

2. Of the beneficial influence of mercury in this disease I can find no evidence. Mercurialism will not stave-off an attack of pericarditis. A remarkable instance is given in the death-books of a woman who, whilst salivated with mercury for syphilis, was attacked with acute rheumatism and pericarditis, which terminated fatally. The pericardium was found firmly adherent. The effect of mercury in removing inflammatory products from the eye is, I believe, frequently adduced as a *prima-facie* argument for such treatment of pericarditis. Granted that mercurialism can do this, is this a proof that the same amount of mercury

(more would scarcely be given, salivation being the limit) can in a short time procure the absorption of all the lymph that can be spread on both surfaces of the pericardium? I have found no cases to support this idea—I am now speaking of a continued course of this drug: such treatment appears to produce a cachexia, which tends to prolong the course of the disease by increasing the effusion, and thus considerably retards convalescence.

On looking over the fatal cases treated by calomel and opium, one cannot but be struck by the frequent record of the pericardium being “enormously” distended with effused serum. Nowadays such cases are very rarely seen in the dead-house, deaths from rheumatic pericarditis in any form being few. Is this to be attributed to alteration in the type of disease? I cannot believe it; and I have reason to think from my clinical cases that the whole of the pericardium is now almost always involved. Can inflammation go farther? It is painful to note that though patients on admission are recorded to have been weak and worn, though the pericarditis was detected, yet the treatment persistently adopted was frequent bleeding, calomel and opium, with even colchicum and antimony. Such are the evidences that would lead me to discard the use of mercury and repeated venesection in the treatment of rheumatic pericarditis.

3. With respect to the alkaline treatment, the first noteworthy observations to be made in the fatal cases are that the symptoms previously alluded to as preceding death are now no longer noted; that the patients do not die with a pericardium “enormously” distended.

Although persuaded that the alkaline treatment is the best yet suggested for certain forms of acute sthenic rheumatism, I have not been able to satisfy myself that alkalies are antidotal to pericarditis. From their effect in mitigating the joint-mischief, it is possible that they may also lessen the tendency to pericarditis; but before this can be considered as established, a comparison is required of cases treated without alkalies: I have no such cases to refer to, as clinical records have only been kept in this Hospital since 1865.

Even now the old belief in calomel and opium seems to hold its ground, and the two are often administered with the alkalies, confidence apparently not being placed in the alkaline treatment alone. On looking over the clinical cases, I find the best results, both in the duration of the pericarditis and of convalescence (a most important point in estimating the effect of treatment), from full doses of potash continued for a short period, followed by bark; and close upon these come the results from treatment with small doses continued for a longer period, but also subsequently with bark.

Of treatment by continued doses of opium it may be said, that though such treatment may tend to produce a condition of ease, it seems not only to prolong effusion, but also retards convalescence. This coincides with the result of observations in respect to this method of treating uncomplicated rheumatism. It may be urged against these opinions, that they result necessarily in a do-nothing system. I do not so condemn the art of physic; but I do hold that specific treatment in this disease is likely to prove fallacious; and that more good is to be done by ministering to the changing symptoms of the patient than by continuing one plan of treatment throughout the varying stages of this disease. The deductions to be made from the favourable results of these clinical cases are the following: If a case of rheumatism likely to be attacked with pericarditis is to be treated with alkalies, full doses (say 3j.—3jss. bicarb. with citric acid) are to be given, even if the amount of joint-mischief appears to be trivial. Should there be much pain on the occurrence of pericarditis, local bleeding may be used; when the first stage of inflammation is over and effusion has taken place, then depressing drugs, with the exception of purgatives, should be withheld; personal experience can teach how depressing is the action of large doses of alkalies: tonics may be freely given, and stimulants, if the pulse shows that they are required—inflammation is not cured by knocking down the patient's strength. If the amount of effusion is considerable, the application of blisters over the heart (not anywhere in the body, I think) will be found of use.



The duration of convalescence in most cases will show whether the patient has been treated judiciously or not.

The following table represents the duration of the disease, without reference to treatment:

In \*1 case pericarditis was detected for 3 days.

*1	„	„	„	4
2	„	„	„	12
2	„	„	„	13
7	„	„	„	14
3	„	„	„	15
2	„	„	„	16
2	„	„	„	19
1	„	„	„	20
1	„	„	„	21
1	„	„	„	40

Excluding the cases at the top and bottom of the list, which may be looked upon as exceptional, the average duration of all cases is found to be 15 days: this is close upon (what may be called) the representative number, 14.

It remains now to discuss the results of pericarditis. The amount of danger arising from adhesion of the pericardium has been differently estimated: by some it has been thought that an enlargement of the heart is liable to result from this condition, or that atrophy may follow; others believe that simple pericardial adhesion produces no appreciable results. A search through the Post-mortem Records has resulted in the discovery of several cases of adherent pericardium, without other complication to account for the state of the heart.

A young girl was admitted with severe rheumatism. She had previously suffered three years from a similar attack, accompanied with præcordial pain. After death the pericardium was found adherent by broad bands; the heart was enlarged by dilatation of the cavities, without hypertrophy. Vegetations of very recent date were found on the mitral and aortic valves.

A man was admitted with a scalp-wound, and died of pyæmia. The heart was found dilated, not hypertrophied; the pericardium being universally adherent.

A woman, who eventually died of encephaloid of the peritoneum,

\* In both friction was limited.

was said to have suffered from pain in the joints with dyspnoea for many years. The heart was found dilated, the walls thinner than natural; the valves were healthy; the pericardium was universally adherent.

A girl, aged 20, was admitted in May 1856, for a first attack of rheumatism. She then had an attack of pericarditis; and left the Hospital with a heart free from murmur. She was re-admitted on October 29, 1860, with the heart free from murmur. She subsequently had an attack of rheumatism and endocarditis, from which she died. After death the pericardium was found to be universally and very firmly adherent. The heart was large, and weighed with the pericardium  $18\frac{1}{2}$  oz. The surfaces of the mitral and aortic valves were natural, with the exception of recent beads of lymph on the mitral flaps.

A lad, aged 11, was admitted, and died of pneumonia. He had had rheumatism twenty-one months before; this had been followed by palpitation of the heart. After death the pericardium was found much thickened and tightly adherent to the heart. The cavities of the heart were dilated, the muscular tissue pale.

A lad, aged 13, was admitted, who had suffered from rheumatism three years before. The pericardium was found much thickened and universally adherent. The cavities of the heart were much dilated; the valves all healthy.

A young woman, aged 20, suffered from rheumatism with præcordial pain in May; she was attacked with dropsy in August, and died in November. The pericardium in this case was universally adherent and thickened. Both ventricles of the heart were dilated; the valves perfectly natural, except a little thickening of the aortic, "not such as to do any harm." Weight of heart  $18\frac{1}{2}$  oz.

These cases are sufficient to show that evil may arise from adhesion of the pericardium: it often happens, it is true, that adhesions of the pericardium are found in patients who have died of some other disease, and the heart is not perceptibly altered. From the cases above detailed it appears that the pericardium must be universally adherent, and the adhesions thick and close, and that a certain length of time is required before ill results follow. It seems also probable, though this requires confirmation, that young persons are more easily affected than old. From one of the cases it is evident that dropsy may supervene in two months after pericardial adhesion.

If constriction of the heart is produced by this alteration, it is easy to understand that the heart's action would be hampered and suffer dilatation. Still, it is satisfactory to see that such cases are comparatively rare, and that

simple adhesion may be present without producing appreciable disease.

True suppuration of the pericardium as a result of rheumatic inflammation must be very rare, for I have been unable to find a decided instance of this in the Hospital Records. Semipurulent effusion may occur, occasionally to a vast amount, of which the following case is a remarkable instance. The examination of the body was made by Mr. Prescott Hewett, then Curator, and the clinical notes by Dr. Fuller, then Registrar of the Hospital. A preparation of the thoracic organs was made, and is now in the Museum; it is an example of the dimensions which a distended pericardium may assume.

A girl, aged 13, was admitted with symptoms of dropsy and dyspnœa. She had been in perfect health three months before, when she was attacked with rheumatic pains of the knees, feet, and hands. In a few days she was seized with pain in the chest and dyspnœa; ever since which time she had suffered from severe palpitation of the heart and a tendency to faint. Six weeks before admission symptoms of dropsy came on. When she was admitted her heart was beating tumultuously, was felt over a large surface, and communicated a tremulous sensation. The chest was dull, and no respiratory murmur was heard; the pulse was regular, a systolic murmur was heard at the apex of the heart. During the rest of her life she suffered occasionally from fainting and vomiting. She died (four weeks after admission) suffocated.

On laying open the thorax, the whole of the front part was found occupied by the pericardium, which was so enormously distended that its sides were in contact with the ribs both on the right and the left sides; the lungs were reduced by compression to a small size, being behind the pericardium, and not to be seen until the whole of the thoracic viscera had been removed in a mass: this distended pericardium was for the greater part filled with a thick tenacious fluid of a yellowish colour.

An adherent pericardium is liable to inflammation, with many of the symptoms due to ordinary pericarditis. This is a condition not always recognised; examples are not rarely seen in the dead-house, the pericardium showing distinct layers of fibrin of different date. One curious case is recorded where four layers were found, a layer of fibrin alternating with a layer of coagulated blood.



General thickening of the pericardium is rare, and some doubt has been expressed as to its rheumatic origin: I have found one case in which a rheumatic history was given. These are all the results that appear to follow rheumatic pericarditis.

REGINALD E. THOMPSON, M.D.

## V. CASES OF SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.

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WHETHER syphilitic disease of the nervous system be more common in my neighbourhood than it is elsewhere. I am unable to say; but it is doubtless very common here. I cannot possibly tell how many cases have come under my notice during the past ten years; many cases I have seen but once, others have escaped my remembrance, and others again I have recognised from the descriptions given me by medical friends of their own cases.

I have thought it worth while to publish such cases of syphilitic disease as I have carefully observed and noted during the past twelve months. The notes I shall publish are much condensed for obvious reasons, and I shall leave comment in most places to the reader. I have not looked upon the want of autopsies as any serious defect in my clinical histories, as the character of the syphilitic mischief is now so well known. In England, Reade, Bristowe, Wilks, Moxon, Hughlings Jackson, and many others, have described this kind of change very carefully; and I myself published a previously undescribed variety of the affection in the last volume of these *Reports*.\* I may refer also to a case with an autopsy of syphilitic encephalic disease in which I had been consulted from time to time during the progress of the case, and which is fully described by Mr. Lawson Tait in the *Medical Times* for Feb. 27, 1869.

The main outcome of the pathological researches into syphilitic disease of the nervous system is at present as follows. There are (1) those cases in which little or no change can be found, although the patient may have suf-

\* See also the very interesting and important communication by Dr. Moxon to the *Lancet*, Sept. 25, 1869.

ferred from headache, convulsion, dizziness, diplopia, and the like. I think it can scarcely be doubted that in such cases the irritable condition of nervous parts depends upon subtle subinflammatory processes in membranes, in neurilemmata, or in both. In my case published in the last volume of the *Reports*, I described, among other things, minute granulations in the pia mater and arachnoid very like young tubercle; these granulations I believe to have been the starting-points of more obvious syphilitic mischief. It is only by the history, however, that these granulations could certainly be called syphilitic; and it seems clear to me that Wagner's belief in a special and characteristic pathological element in syphilis cannot be upheld.

(2) Those cases in which there is obvious change. In them we find it in the following places besides the bones: (a) the membranes; (b) the vessels; (c) the central substance, gray or white. This is the order of frequency; and the order of frequency depends upon the amount of connective tissue existing in each part. The most common kind, which commences in the membranes, and thence invades the encephalic substance, is seen on the convexity, but perhaps more often and more in quantity at the base—at and near the chiasma, or backwards up to about and beyond the pons Varolii. It frequently causes secondary softening of the substance also, by cutting off the nutritive action of the pia mater, or by strangling larger vessels. Primary disease of the encephalic vessels is seen in the main trunks, in the arterioles, and in the two together; it destroys the encephalon, commonly by interference with blood-movement, seldom, if ever, by rupture and extravasation. Primary syphiloma of the encephalic substance is rare, but undoubtedly occurs; although Wilks had not met with it in 1863 (*Guy's Reports*), many cases of it are published with careful descriptions. I have met with it once at least. I have said, we fail to discover anything specific in the structure of this syphilitic mischief. Indeed, it is more easy to recognise it in the mass than by its minuter characters; it is more easy to classify it by its clinical than by its pathological development. It is not merely allied to inflammation, but is



an inflammation; an inflammation which may indeed have all the appearance of a simple one, but which generally results, patchily, in dense fibrous growth, and in abundant proliferation with great instability. On opening the head we find membranes and parts adjoining matted down in a fashion reckless of anatomical order; all this again smeared with gummy matter, in which the colloïd bears an unusual proportion to the fibroïd constituent; this again surrounding masses of all forms—masses gelatinous, gray and yellow, lumped up and stuck together with spoilt brain-tissue, soft or sclerotic, with damaged and spoilt vessels, and with opaque and thickened fibroïd tissue and adventitious membrane. Hence the curious combinations of clinical phenomena to which these changes give rise. Syphilis seldom picks its way daintily along beaten ways, and seldom makes a quiet nest for itself like another tumour, but blunders carelessly into all and any parts just as they come. A mass in the hemisphere may give rise to but little apparent palsy, or to no break in the commoner relations of things, until the patient dies suddenly, after a few fits and a coma; on the other hand, a minute tract of inflammation, by snaring a nerve in its run, may cause at once a local palsy of an annoying or an alarming kind. A thin film of surface irritation, again, on the hemispheres may set up epileptic fits, which may be associated with another bit of mischief, strangulating a special-sense nerve, or causing some other distant local palsy, say perhaps in the cord, while the arteries also may be silently thickening and shrivelling, until one is blocked up, and a hemiplegia strikes down a strong young man years before his time.

Such a variety of clinical phenomena we shall see in the cases which follow; and we shall see once more how syphilitic disease of the nervous centres is for the most part to be detected, not by its uniformity, but by its very variety and caprice.

CASE I. *Syphilitic disease at the base of the encephalon.*

W. Waddington, æt. 45, a mason, resident at Drighlington, was admitted into the Leeds Infirmary, under my care, on January 17, 1868.

He is of healthy family, and has himself been a strong man. Has been intemperate, but not of late; has suffered from syphilis, with "secondaries," some years ago. Three years ago began to suffer from pain at the back of the head and in the neck, accompanied by giddiness and occasional vomiting. These symptoms are still present, the "sick fits" coming on with a feeling of giddiness. When walking, he sometimes falls down suddenly without warning, "as if he were shot," and "jowls" his head against things. States that he never loses consciousness or struggles. He has occasional twitchings of the left side of the face, which is blank in expression. He is very deaf of the left ear. The food is apt to gather in the left side of the mouth, the temporal and masseter muscles seeming to be much affected. The left eye is as wide open as the right; the pupils are equal, and contract under light, and the orbital muscles are all active. The left conjunctiva has occasionally been much bloodshot. The twitching seems chiefly to affect the left zygomatic, levator anguli oris, and corrugator supercillii muscles. On this left side of the face and tongue the sensation is very deficient for touch, pain, and warmth; "it feels as if a line were drawn down the middle of his face." Neither hand is as strong as it should be, but the right hand is much the weaker (he was formerly right-handed). There is no atrophy of the muscles, and they respond to Faradisation. The memory has failed somewhat of late, but not the intelligence. The bowels have been confined, but now are loose.

*Ophthalmic examination.*—Both disks (on admission) are normal. Many irregularities are to be found upon the cranium, and some of these are tender. There are slight glandular enlargements behind the neck.

On account of the irritability of the bowels, the iodide of potassium could only be used cautiously and in small doses. He remained in the hospital for eight weeks, and was then taking eight grains of the iodide three times daily, with five grains of pil. hydrarg. combined with half a grain of opium, once daily. He was discharged relieved.

I saw Waddington from time to time as an out-patient, but he did not attend regularly. In July last, as he seemed to have got much worse, I again admitted him. The symptoms were as before, but much aggravated. The pain was intense, and the muscles of expression on the left side were now in constant clonic spasm, to the patient's great annoyance. He had developed double optic neuritis while an out-patient, and now presented atrophy of the first degree in both eyes. On testing the muscles of the orbit, I found slight want of power in looking outwards with the left eye, a droop of that eyelid, and a tendency to internal squint with the same eye. He was still liable to fall unexpectedly, but there was no great weakness of either leg. The bowels were now regular, and he took large doses of iodide of potassium (gr. xv. to xx. ter die), with wonderful relief. The pain in the head ceased, and the giddiness was much relieved; the cheek also became much quieter, and sensation returned in it to some extent. I believe that this patient is the subject of fibroid and gluey growth in and about the membranes upon the pons Varolii. Dr. Lockhart Clarke, to whom I once showed the patient, suggested, on a cursory examination, that there might be a

tumour in the fourth ventricle catching the blended nuclei of the abducens and the facial. I think not, for several reasons. The fifth nerve in both branches was affected chiefly, if not entirely, in the first instance, and then the seventh followed. The sixth was affected later, and is still but little touched. Not only, again, are both branches of the fifth affected, but also both branches of the seventh, the deafness of the left ear being very decided. This affection of both branches of the fifth and seventh points to a lateral lesion at the base; the later implication of the sixth being, as I have seen in other cases, due to its springing nearer the median line. There has been no sugar in the urine, nor albumen. The success of the iodide in this case is a striking instance of the advance of modern medicine. A very few years ago a physician would have blistered his scalp industriously, and kept it open for weeks with irritating ointment, or would have put in issues in the neck, and purged him freely.

CASE II. *Disease of the pons Varolii. Amaurosis.*

William Kennedy, æt. 32, skinner. Admitted under my care April 24, 1868. Family history unobtainable. Has had repeated "attacks" of syphilis. Eight months ago, pain in the head came on with sickness. He then found that the left side of his face was becoming numb. He also began to find a difficulty in mastication. In five months after the first symptoms he was obliged to leave off work, in consequence of failure of sight. The next thing he noticed was a gradual loss of power in his right side. This weakness went on quickly to complete palsy; but partial recovery took place soon afterwards. The limbs were quite powerless for perhaps a fortnight. He once fell suddenly,\* and never feels safe in walking. On admission there is decided weakness of the right arm and leg, and some deficiency of the left limbs also. The left muscles of mastication are palsied and emaciated. The left muscles of expression are also flabby; he closes the left eye less vigorously than the right. All these muscles respond to Faradisation. There is scarcely any sensation on the left side of the face and tongue. Saliva is constantly running from the left angle of the mouth. He has some difficulty in voluntary deglutition, and says he cannot send down a mouthful of food without forcing it into the gullet. The portio mollis is normal; so are the orbital muscles. The disks are atrophied. I have no note of the movements of the chest. He improved remarkably on iodide of potassium. I have had Kennedy under constant or occasional care ever since this sojourn in hospital. I have readmitted him several times, in the hope of a post-mortem, and have kept him in various safe places ever since, awaiting his death. His left ear became deaf, and articulation gradually gave way. Speech has now long been lost, this form of activity being replaced by a continual and often furious howling. Weeping and other emotional demonstrations were not uncommon in the earlier stages of the disease, and latterly he has kept up a constant wailing. His right arm and leg are quite paralysed, and his left leg is much weakened. With his remaining limb he beats against the head

\* Comp. Waddington, case i.



of his bed, and wails whenever he is noticed or addressed. His facial palsies have travelled across, so that his face is like a mask. He still can swallow without choking when food is thrust into the gullet. He eats voraciously, and if not constantly fed, he roars like a wild-beast. His intelligence, such as it is, seems unoppressed, and he hears acutely with the right ear. He is now living almost motionless—living like a vegetable, and disposing of enormous quantities of food. There has been no change in him for many months, and I have not been able to keep up any regular treatment. His respiratory muscles and his tongue are unaffected. I have noticed voracity in several cases of superficial disease of the pons, and have thought it not unlikely to be due to an irritation of the pneumogastric nerve or its nucleus.

The pons Varolii and upper medulla, taken with the fourth ventricle, is a very complicated part of the encephalon, and we may expect that limited lesions of its substance will therefore give rise to various groups of symptoms. These symptoms will vary still more when such lesions involve the crura cerebri and cerebelli, or when they involve nerve-trunks.

CASE III. *Disease of the pons (and basilar artery?). Partial recovery.*

William Cryer, æt. 28, was admitted into the Leeds Infirmary, under my care, on September 21, 1868. Denies that he ever had syphilis; but Mr. Bradley informs me that he was under treatment as an out-patient some time before for ulceration and tumour in the tongue, which quickly cleared up under potass. iodidi. On the morning of admission, after feeling dizzy for some weeks, he went to his work as usual at 5 A.M.; he arrived at the shop at about 5.20, and at 5.30 he was found lying on the ground, paralysed and apparently unconscious. He states that he never lost consciousness, and that he remembers all that passed, but was unable to communicate his consciousness to others. I have no complete notes of his state on admission. He was, however, helpless, speechless, and unable to swallow. When seen by me about a day and a half after admission, I found him palsied on the whole of the right side, except the face; his face was palsied on the left. The right hemiplegia was not of the arm and leg only, but also of the right half of the chest and the right half of the abdomen; the right rectus being quite flaccid, but the left rectus rather tense. He could close the left orbicularis, but not strongly. The muscles of expression did not respond readily to Faradisation. The pupils were equal, slightly dilated, and sluggish. He moved the tongue a little when requested, but could not protrude it. No articulate sounds escaped him, but he wept, howled, and beat the back of the bed with the left hand, just like the patient Kennedy. He was quite unable to swallow, and had to be fed with a tube; he had lost power over the bladder and rectum. He was perfectly sensible. He continued in much the same state until the 7th of October, when I heard from Mr. Bradley of the history of disease of

the tongue. I then put him on ten-grain doses of pot. iodidi, *ter die*; and from that date he began decidedly, though slowly, to improve. On October 13 he began to protrude the tongue. On October 20 he is reported as "improving steadily," and the œsophageal tube is no longer necessary. On October 30, pil. Plummer gr. v. is ordered every night. November 5. Begins to articulate, and can say two or three single words distinctly. Still complete palsy of right side, and passes both urine and stools under him (urine not albuminous). On November 17 Faradisation was ordered to limbs. December 17. Faradisation reported to have been rapidly beneficial. Can move the right leg in bed, and can count ten with tolerable distinctness. On December 23 he was made an out-patient.

I never saw Cryer again until the week of the meeting of the British Medical Association this year. I then sent for him into the house, and showed him to Sir William Jenner, and to Drs. Lockhart Clarke, Brown-Séquard, Charcot, Broadbent, and several other physicians. He could now talk freely, but indistinctly: the paralysis of the left face had much improved, and its muscles responded to Faradisation; the pupils were still equally dilated and sluggish. The right arm and leg were still very weak and tremulous, and were atrophied; he breathed chiefly with the left chest. On making a deep inspiration he moved both sides, but, as Sir William Jenner pointed out, the movement of the right half was distinctly subsequent to the movement of the left. He was unable to cough. He thrust out the tongue readily, and was mentally quite sound. He no longer wept or wailed. The optic disks, though reddish, were not much changed, if at all.

Nothing can be clearer than the exact locality of the mischief, but there is a question as to its nature. It is not syphiloma, nor thickening of the meninges; the whole course of the case, the character of the facial palsy, and the absence of optic mischief, assures us of this. Can it be acute softening? Dr. Brown-Séquard thinks so; and he spoke to me of several cases in which such mischief had set in suddenly. I have seen one such case, and I remember seeing one or two cases reported, I think, by Gubler. But looking not only at the suddenness of the mischief, but also that its worst was reached in a moment, while all the subsequent history has been one of slow melioration, I am disposed to adhere to my first belief in a hæmorrhage, or in syphilitic disease of the arteries with blood-stoppage. If syphilis has anything to do with the matter, it is, no doubt, by means of disease of the arteries. The absence of convergent strabismus is to be remarked.†

#### CASE IV. *Superficial disease of pons Varolii and of cerebral vessels.*

Mrs. A. A., æt. 27, was admitted into the infirmary, under me, on July 22, 1869. She was then suffering under mental and muscular derangements of so curious and inconstant a kind, that the term hys-

\* I think acute softening of the pons is very rare.

† The very remarkable case published by Dr. Moxon in the *Lancet*, for Sept. 25, 1869, makes me think it highly probable that Cryer's is one of the same kind not ending (as yet) fatally.

teria was somewhat in demand. As we were able gradually to winnow the symptoms, however, it seemed quite clear that there was decided organic disease of the encephalon; and with this opinion those gentlemen agreed who saw Cryer and Waddington, and who also saw A. A. Since that time I have got as much of her history as I have been able, with the help of my indefatigable house-surgeon Mr. Coleman, and of my friend and colleague Dr. Eddison, to whom A. A. first came at the dispensary, and whence he sent her to me at the infirmary. Dr. Eddison says, "I have no notes of A.'s case. She always spoke of pain in the head, especially the left parietal region. She was very weak, and had 'jerkings and tinglings' in the right leg and arm. She had no relative weakness of right leg as compared with the left. The right arm was feeble. She had intermittent impairment of memory, forgetting the name of her abode, &c. She spoke with difficulty, but I could always make out what she said. There was not much hope, however, of following the case out at the dispensary."

Mr. Coleman made out from her friends that she was separated from her husband, and led a loosish life, going from town to town, and gaining an ostensible livelihood as a mill-hand. Her mother perceived at once that our inquiries had reference to syphilis, and seemed to look upon it as a far from improbable supposition. The patient has distinctly the dead-leaf complexion; and the results of specific treatment leave scarcely any doubt of the nature of the malady. All I can gather from her is that she began at first by having violent convulsions in her right arm, and sometimes in the leg also. For some time she had no loss of consciousness. The arm would set off, like the steam-arm of song, and go through a distressing series of spasms, which were quite beyond control. She then became subject to fits with loss of consciousness; and these she had daily at the time of her admission. Every evening a fit would commence; it started in the tongue, which, Mr. Coleman tells me, used to be violently convulsed for some seconds; the face was then drawn in spasm to the left side, and tremor passed over the right limbs. There was also spasm of the left rectus externus of the orbit. The left pupil was not convulsed in the fits, but was rather dilated and still. After the attacks she was always much enfeebled in intelligence, and was deprived of speech. When I saw her in the mornings, I used to find it impossible to make anything out of her; and she took refuge in monotonous repetitions, such as "Little better," which we are not accustomed to look upon as belonging to aphasia of the pons Varolii order. I, however, distinctly made out that there was decided weakness of the left face and right limbs, also that the left fifth nerve was enfeebled in sensibility. She had also the most "beautiful" optic neuritis in both eyes that I ever saw.\* The left sixth nerve was also decidedly enfeebled. She had a difficulty in bringing the left eye into the left corner, and I used the farther important test of seeing how long she could hold it there. Many patients with weak orbital muscles can bring the eye for a moment into any position; but if they are told to fix the eye upon any movable object held in the trying position, the object

\* She has now atrophy of the first degree (Oct. 15).



is fixed for a short time only, and the eye slowly yields, and returns to the middle line. I ascertained, moreover, that for a short time after the fits she had decided difficulty of swallowing; and if she attempted to swallow soon after them, was in danger of choking. The memory and mental faculties were very much weakened. The urine was not albuminous. There was no doubt that the mischief lay in a favourite seat of syphilitic disease, viz. at the posterior base of the encephalon. After about a fortnight's interval, during which she grew worse, I put her on potassii iodid. with the happiest results. The mind cleared, the fits gradually ceased, articulation and deglutition were reëstablished, and the patient's general condition changed much for the better. At the time when I now write (the end of August) there remain the slight affections of the fifth, sixth, and seventh nerves; but the patient is cheerful and intelligent, is walking about the ward, and remembers all that passes with a facility which is surprising to herself. A remarkable event occurred some time after this patient's comparative recovery. She had not had a fit for some days, and I applied the poles to the left cheek to test the palsied muscles. I had no sooner passed the interrupted current, when she was instantly thrown into a fit, which lasted three or four minutes. I think the case is not the same, however, as that of Dr. Brown-Séquard's guinea-pigs; for in my case the branches of the fifth communicated immediately with a diseased centre.\*

CASE V. *Convulsion. Right hemiplegia. Optic neuritis.*

—, æt. 28. This young woman has been under my care for three years with cerebral symptoms following tertiary syphilis. Convulsions, vertigo, vomiting, and intense headache have been her main symptoms. About two years ago she also began with double optic neuritis, and she has now atrophy of the second degree. During the last eighteen months she has been permanently hemiplegic of the right side. She can still walk, but with a limping gait. She has intense referred pains in the right arm and leg. The temperature in the right axilla varies from 2° to 4° Fahr. lower than that in the left axilla. There is no aphasia, and no strabismus. The urine is not albuminous. The convulsions are sometimes quite confined to the right side; the right side is always affected more than the left, and the leg is more affected than the arm; which is worthy of remark. The fits are not always preceded by much vertigo, for she will sometimes fall suddenly in the street without a moment's warning; at other times she suffers from petit mal; at others, again, from vertigo and convulsion, without loss of consciousness; at others from paroxysmal intense headache, chiefly frontal. She often has loss of consciousness. Her memory is enfeebled, but otherwise her mind and feelings seem fairly normal. The hemiplegia has become certainly but slowly worse; it is confined to the arm and leg. The mischief in her case is very rebellious to treatment, and she has taken large and repeated quantities of both iodide and bromide of potassium,

\* Mrs. A. is still in the infirmary, Oct. 15. She is to all appearance quite well. There are many evidences, however, of slight muscular weakness, especially in the right arm and leg.

without any great relief. Her strongly-marked syphilitic aspect has yielded but little to the same treatment. I do not know whether I have any right to make the conjecture, but I suspect this is a case of primary syphiloma, probably in the left hemisphere.

CASE VI. *Headache. Convulsions. Vomiting. Optic neuritis.*  
*Waxy (?) kidney.*

E. P., a prostitute, æt. about 26, was admitted, under my care, on June 21, 1867. She contracted syphilis four years ago, with a large swelling, and afterwards a suppurating sore, on the inside of the thigh, near the labia. Her head and face about the same time became covered with eruptions. Under medical treatment she seemed to recover, until twelve months ago, when she had much violent headache of a persistent kind. She still has it, and it is often attended with dizziness and sickness. Her scalp has often been tender, and her hair has twice fallen off. Four months ago she had two fits in the street, at short intervals, while pursuing her accustomed *métier*. After falling, she was quite unconscious for perhaps an hour on each occasion. Her mouth was drawn to the left side. That night she was seized with "tearing and jumping" pains in the head, with some pain in the loins. Her face was flushed, and she was delirious. For two days she remained "speechless," and for a week or two she was very sick. She was attended by Mr. Loe of Woodhouse-lane, who said that her fits were epileptic. She has been often under his care, getting better at times, and then falling back after any excesses.

On admission, she has a peculiar wild fixed stare in her eyes, optic neuritis in both disks, and contracted pupils and eyebrows. There is a slight syphilitic eruption on her forehead, in the middle line. She complains of very severe pain in her head—back and front alike—with pain in her loins, and shooting pains in all her limbs, which are worse by night. She has some leucorrhœa, and some difficulty in micturition. Urine pale, clear, scanty, albuminous, s.g. 1015. She is often the subject of rigors, startings and shakings of her limbs, with fits of dimness of vision and vertigo.

This patient improved very considerably on gr. x. doses of pot. iodid. She became an out-patient, and after a few weeks I lost sight of her.

CASE VII. *Headache, vomiting; optic neuritis.*

M. A. B., married, æt. 44, admitted, under my care, on May 14, 1869.

Twelve months ago began to suffer from obstinate sore-throat, with ulcerations. Painful swellings have also appeared upon the flat bones; there is one at present upon the manubrium sterni, and another on the acromion process. During the last few months she began to suffer from headache, with vomiting and constant nausea, which are now most intense. She has "bad odours" "intolerably" in her nose, and almost daily "attacks of blindness," lasting several minutes. Sight fails quickly on attempting to read. She has lately become deaf of both ears, and especially of the right ear.

On admission, complexion earthy and sallow; hair thinning, and

leaving the forehead; scalp tender on combing. No enlarged cervical glands. Complains sadly of the headache. Urine normal. Out-patient hospital exam. Right disk hyperæmic, swollen. Some gray exudation (commencing optic neuritis). Left disk, slight hyperæmia.

(It is reported that the patient had a "struggling fit" shortly before admission; but she herself knows nothing of it.)

This patient improved marvellously on gr. x.-xv. of iodide of potassium ter die, combined at first with 5j. of liq. hydrarg. bichlor. The headache and sickness receded, the complexion cleared, and her "odours" vanished. After a fortnight's treatment the hearing improved, and was ultimately almost recovered. The right optic disk cleared a little, and the left optic disk remained *in statu quo antea*. I saw her for some weeks as an out-patient, and with the exception of a few fresh nodes, which appeared, with transient increase of the head-symptoms also, on June 23d, she continued to do well. I saw her last about the end of July.

CASE VIII. *Syphilitic disease of the vessels, followed by softening of centres.*

I saw this patient twice, in consultation with Mr. Mann. Mr. Mann gives me this history.

T. H., æt. 34, healthy. He gives a history of the origin of his disease, which Mr. Mann regards as false, and "a blind" to his wife and friends. He has been married nine years. His wife has a very sallow aspect, and has never conceived.

August 1868. A spare haggard man, with syphilitic scars all over the face, and some on the limbs. The cranium and left tibia greatly thickened.\* There is a marked loss of substance upon the glans penis, the evidence of previous chancre. Has just been seized with paralysis of left limbs and face. No loss of speech or consciousness. No albumen. Treatment with iodide of potassium restored him to health in a fortnight or so. March 30, 1869. Hemiplegia of right side, with convulsive twitchings of the face, arm, and leg on that side; vomiting; headache; constipation; retention of urine.

Treatment. Iodide of potassium alone, and conjointly with bromide. Occasional mercurials. Gradual improvement.

June 1. Vertigo; general tremors; loss of speech; mental faculties much weakened; consciousness unimpaired. These paroxysms did not yield to treatment as before, but returned hourly, and in a few days became even more frequent. June 29. He was quite unable to leave his bed; vomiting; paralysis of all the limbs; coma. Died July 4th.

It is very difficult to secure autopsies in cerebral diseases. They are tedious, and such patients pass from place to place, trying one doctor after another; they often die suddenly at last, and are buried before one hears of their end. In the present case, T. H. had got an idea we were inquisitive about the state of his encephalon, and made his wife promise not to satisfy our curiosity.

\* It is a remarkable fact that although H.'s tibiæ were greatly deformed, yet he seems to have had no night-pains.



CASE IX. *Syphilis. Hemiplegia. Optic Neuritis.*

Mrs. C. P., æt. 48, was admitted under my care on September 4th, 1869. I was from home during the chief part of her stay in hospital, and on my return in October I found her well enough to be discharged. She had been treated in the interval with increasing doses of iodide of potassium (gr. v.-xv.). The notes are not so full as they would have been had I watched the patient during the whole of her time in the house. On admission we could get nothing from her, as her articulation was very defective, and she was very deaf. She has the dead-leaf or earthy complexion in a marked degree, and is much wasted. She holds in her arms a wasted child, aged about six months. She seems to have intense pain in her head, which brings tears into her eyes; and she said afterwards that she had also much nausea at the same time. There is left hemiplegia, which is not sufficient to confine her to bed, though she walks with great difficulty; she seems also to complain of great pain in the elbow- and knee-joints of the left side. She has internal strabismus of the right eye, and there are the remains of the neuritis in both eyes.\* Under iodide of potassium her articulation improved rapidly, and her side began to recover, although she had received no benefit from a long course of non-specific treatment as an out-patient. We now found her memory was much injured. She informed Mr. Coleman that seven months ago, a fortnight after the birth of her present child, she began to suffer pain and numbness, running from the left hand and foot up to the left side of the head; four or five days afterwards, on awaking in the morning, she was speechless and hemiplegic of the left side. She continued much the same, or rather worse than better, until her admission. She also says that she has had thirteen pregnancies. The two first were premature births, the first being a shorter carriage than the second; the third child was born at the full time, but soon wasted away; the rest are said to have been healthy, but several are dead. She was discharged on October 10th.

Mr. Coleman's note is: "Power now returned in left side almost completely; speech, mind, and memory restored. She is still very deaf in her left ear."

CASE X. *Right Hemiplegia. Aphasia.*

Mrs. J., æt. 31, was admitted into Ward 10 under me, on September 11th, 1869. I saw but little of her, and the notes I now give were handed me by Mr. Taylor, who had charge of my patients during my absence from home. There is little direct evidence of syphilis in her case; she

\* I must note once more how very significant optic neuritis or atrophy is of syphilis. The reader will see how constantly it has occurred in the present cases. I was lately in the Halifax Infirmary, where I saw a patient of Mr. Hodgson Wright suffering simply from headache, sickness, and blindness. The house-surgeon kindly allowed me to examine the patient's eyes, and I found both disks atrophied. I accused the man of syphilis, and he made a full confession. I subsequently met Mr. Wright, and he told me that he had also discovered the nature of the case, and had given the man great relief by the use of iodide of potassium.

had, however, been the wife of a dissipated husband, since dead, and both her children by him were stillborn. She can give no cause for the stillbirths, which were at eight and at eight months and a half respectively. She has the look of syphilitic cachexia, and she has shown great powers of recovery under iodide of potassium. Her head-symptoms began on the 4th of last June with intense occipital headache and vomiting. Shortly afterwards she found herself hemiplegic on rising in the morning. She was affected on the right face, arm, and leg. She was unable to protrude the tongue, and her speech was much impaired. Her memory also suffered much. On admission she is barely able to walk a few yards, and her right hand is useless. Her speech is quite unintelligible, but she can move and protrude her tongue readily. Nothing can be made out of her at this time, and she is soon moved to tears. Her heart-sounds are normal. Under treatment by potassium iodide (gr. v.-xv.) she improved rapidly day by day. When I saw her in the first week of October she could walk about the ward and say many words. Curiously enough she always failed in numbers. However we might lead her up to any sentence involving numbers, she invariably broke down in it, though tolerably intelligent in other ways. She could not tell us, for instance, how many buttons she had on her dress, nor the number of days in the week. She is now (October 30th) almost well. No embolic hemiplegia would have yielded in this way.

CASE XI. *Paraplegia. Syphilitic disease pressing upon the anterior columns, and chronic meningitis upon convexity of hemispheres, with softening.*

J. T., æt. 34, plumber, admitted, under my care, January 14, 1869. Family history good. Has handled lead a good deal, but never had colic or constipation. No blue line. Denied to me, on admission, that he had had syphilis, being evidently in fear of the consequences of a confession. He admitted it to Mr. Drake, my clinical clerk, a few days afterwards. On July 21 went to bed well, but on awaking in the morning found he was very weak in the legs. He could not stand, but could move his legs freely in bed. They have grown gradually weaker up to present time. During same time has lost power over urine and bowels. Sensation has not diminished. No cramps or startings. No sensation of cord round body. During the first few weeks had two "fits" (apparently epileptic), and had a third a week before admission. He was aware of their coming on "by a sense of great cold in his legs;" remembers no more. Has been under the care of Dr. Dobson of Holbeck, who was so good as to forward the patient to me.

On admission, is unable to stand, but can move either leg slowly up in bed. Nutrition and contractility of muscles normal. Sensibility normal, or but little decreased. There are a number of syphilitic blotches and scars upon the lower legs, and the tibiæ are thickened. No tendency to bed sore. Is readily moved to weeping, and his mind and memory are much weakened. Cannot retain either urine or fæces. Reflex actions easily excited in legs. Treatment: pot. iodid. gr. v., soon run up to xv.

March 5th. Can raise his legs in bed more easily, but cannot walk. Has gained some control over bladder and rectum.

18th. Can retain both urine and fæces, and, with assistance, can walk.

24th. Gets up a little every day, and continues to improve rapidly.

Soon after made out-patient, and in a fortnight walked a mile and a half to the out-patients' table. He was now put on citrate of iron, but during the next fortnight fell back decidedly. The iodide was then recommenced, and he again improved. He soon after ceased attending. The consequence of this was that he again fell back, and applied again for medicine; when on gr. x. to xv. ter die of iodide he again got better. Once more we lost sight of him; and on July 13th his wife called to say that he had had several fits, and four days before death had a "stroke, fixed and stiff all over—shooting himself right out." It lasted fifteen minutes, and was followed by many hours' sleep. He seemed to awake again at times, and to be sensible, though unable to articulate. "He slept more and more till his death." His eyes were not examined.

Lancereaux (L. and Gros. p. 275) publishes a like case: "Syphilis antécédente; paraplégie; paralysie des sphincters. Iodure de potassium. Amélioration rapide." Vide also Wilks, *Guy's Reports*, 1863, p. 50.

CASE XII. *Syphilitic disease in or upon the posterior spinal nerve-roots. Paraplegia of tactile sensibility. Locomotor ataxy.*

M. S., æt. 35. Admitted under my care, in the Leeds Infirmary, August 9, 1869. Was quite well until four or five years ago, when she began to have pains in the legs. These pains were not shocks along the nerves, but grinding pains in the legs, always below the knee, and always worst in bed at night. Was quite sure that all this time she had no weakness of the legs whatever. Twelve months ago, on rising in the morning, found her legs palsied; could move them in bed, but could not stand upon them. The right arm was also weakened. At this time the sensation in the legs was unimpaired. The right arm soon got well, and the legs in three weeks became so far better that she was able to walk with the help of furniture, &c. During this three weeks, however, the sensation in the feet began to fail; and as the power has returned, the sensation has failed more and more up to present date. She has had no affection of bladder or rectum, nor any pain in the back. At present her legs are but slightly weakened; the gait is, however, extremely uncertain; she cannot attempt to walk alone, but easily walks any distance when she has hold of a friendly hand, or if she can run her fingers along the wall. She cannot stand for more than a few moments with her feet together, and on closing the eyes she totters instantly. She has the characteristic jerking gait of locomotor ataxy. On the outside of the calf of the leg cannot distinguish two points at four inches; on the sole cannot in some places distinguish them at three-fourths of an inch distance; in other places not at one inch. The points have to be firmly pressed into the skin to make her aware of them at all. She cannot feel tickling of the soles, but is con-



scious of the temperature of the hands when applied to them. She loses her legs in bed, and when they are crossed, cannot uncross them without looking at them. The memory is a good deal weakened, but the intelligence is good. The pupils are contracted, and the disks are in the second stage of atrophy. Urine, s. g. 1010; no albumen. I admitted this patient as locomotor ataxy, but was struck with her dead-leaf complexion and the retirement of the hair from the forehead, and also, again, with the character of the pains, which, on further inquiry, did not resemble the pains of locomotor ataxy. There were no nodes on the shins, but, my suspicions being aroused, I got the following history. Ten years ago she left her husband. Previous to her secession she was four times pregnant. The first three pregnancies ended in premature delivery of dead children, the successive gestations being longer and longer. On her fourth pregnancy she bore a living child, which lasted a month, and then "wasted away." Her husband, we found, died in the Infirmary; Mr. Coleman investigated the cause of his death for me. He found that two years and a half ago he was under the care of Dr. Chadwick and Mr. S. Hey, and was suffering from most undoubted and very severe syphilitic laryngitis. Laryngotomy was performed, and he died soon after the operation.

After M. S. had been in the house a few days, I got at these "commemoratives," and promptly put her on gr. v. to x. of iodide of potassium. She has improved greatly, and is still in hospital. This case is a most remarkable one, and may well be taken in connection with my essay on locomotor ataxy (*British Medical Journal*, February 20, 1869) by any kind reader who thinks it worth his while to be at the trouble.

*Remarks.*—I have occupied too much space to dare to make many reflections. My cases show, as do those of others, that intense pain in the head, with sickness and dizziness, is very suggestive of syphilis; and this suspicion becomes a very high probability when we see a local palsy of the face or orbit. Yet I have had several undoubted cases of syphilitic encephalic disease without pain in the head, even where the membranes were involved. The case referred to as published by Mr. Tait had but little headache. Much dizziness, especially if with threatenings of the larger palsies, suggests disease of arteries. The convulsions in syphilis frequently occur without loss of consciousness, are often partial, and often preceded by vertigo. Optic mischief is very common; it is generally neuritis or atrophy, except in the disease of vessels, when we see a very slow atrophy, seldom or never passing the second degree. I see syphilitic encephalic

disease in both sexes, and at any age and interval after infection, the intervals varying from one year to twenty years; an interval of ten years after infection seems to be common. It seems to follow any treatment, mercurial and other, and any previous care; the only prophylactic and the only remedy being iodide of potassium, not taken for weeks only, but for months and years. There is generally marked syphilitic "cachexia." It occurs in stupid and uneducated people as often, at least, as in those of much mental activity. The results of treatment by iodide are, on the whole, most satisfactory. It succeeded well in many inveterate cases, but failed, on the other hand, in the early stages of case v. (syphiloma?).

T. CLIFFORD ALLBUTT, M.D.

## VI. CLINICAL OBSERVATIONS ON ACUTE TUBERCLE.

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DURING the last few years much difference of opinion has arisen on the subject of the origin, nature, course, and treatment of phthisis; and whilst some would consider this malady under the old divisions of acute and chronic, and would account for the variety of symptoms rather by the position than by any difference in the nature of the pathological lesion, the other would include under the same term a number of subdivisions, each of which forms, in their opinion, an independent disease.

It is undoubted that in England there has been a tendency to class together under one name several separate conditions of lung. But whilst this is allowed, I venture to protest against too minute a subdivision, and one that is based only on microscopical research, and that leaves unheeded an identity of symptoms. I think the post-mortem appearances in cases of so-called acute tubercle teach us that this malady, justly considered single in its course and symptoms, includes several pathological varieties, one of which is the scrofulous, and another the tuberculous disease of the lungs. Some, important symptoms, however, distinguish this condition from chronic catarrh of the lung and chronic pneumonia.

Acute tubercle is met with under various forms :

1. That of general tuberculosis, with rapid formation of tubercle in almost all the tissues; most common in childhood.

2. Tubercle of brain and cord, leading to acute cerebro-spinal meningitis, with tuberculous masses of various sizes embedded in the substance of the nervous centre, or attached to the pia mater. This form is also most common in childhood, but it is met with also after puberty. In children there may be no concurrent disease of lung;



but tubercle of lung is almost universally found in patients who, after the age of puberty, have died of tuberculous disease of any organ.

3. Tubercle of lungs, and this under several conditions:

i. With very slight increase in the number of respirations, and with no other special lung-symptom; whilst after death the lungs are filled with miliary tubercle.

ii. With signs of acute pneumonia, generally double, but without very marked dulness, and with the same formation of miliary tubercle.

iii. A third form, which may be called the suffocative form, is seldom met with; and I therefore reproduce the description given of it by Jules Fournet:

“There is a peculiar form of primary acute phthisis which has been very little described. Its principal character is an intense and gradually increasing dyspnoea. The febrile symptoms are very pronounced. It generally commences very suddenly, and has an extremely rapid course. The countenance is of a deep red, sometimes violet, as in a condition of fulness of blood; the conjunctivæ are injected, the dyspnoea extreme, and the patient is in a state of oppression of the respiration approaching suffocation. The scene sometimes ends in some delirium. In one word, it is a description of asphyxia. Indeed, we recognise after death that a great number of miliary tubercles have attacked the greatest part of the mass of the lungs, and that the rest of these organs are engorged with blood. These tubercles are sometimes so abundant that the lungs are found converted into a solid heavy mass, as in hepatisation. The patient dies before there has been time for emaciation to occur. This phthisis, fortunately very rare, is very like, in its external aspect, pneumonia complicated with catarrh; but we observe none of the signs of pneumonia, and the local signs that we collect in this acute phthisis are very different from those of catarrh, viz. a diminished inspiratory bruit, an increased expiratory, a marked roughness and dryness of this murmur, and generally a little bronchial breathing. But these characteristics offer some peculiarity, which does not belong to ordinary phthisis—something less clear and more intense. Besides, these characteristics are not localised at the summit of the lungs, as is generally the case; they are scattered irregularly over the whole of the anterior surface of the chest, almost equally on either side. Percussion gives a sound dull at some parts, clear or even exaggerated at others. Vocal fremitus is diminished, expiration is null, thirst intense, the skin dry, burning, and of a biting heat. The countenance is very flushed, with an expression of suffocation; but this expression of face is different from that observed in simple acute catarrh. M.

Andral published in the *Clinique Médicale* an example of this form of phthisis; the name of asphyxial phthisis seems to sum up its principal character."

iv. With the physical signs of acute bronchitis.

4. Tubercle of the peritoneum, in which the main symptoms during life are peritoneal, and in which this membrane is the chief seat of the morbid formation; the lungs being generally, if not universally, implicated.

5. Tubercle affecting the intestines, often simulating typhoid fever in most of its symptoms, and implicating Peyer's patches, the solitary glands, the absorbent vessels and glands, but sometimes occurring with scarcely any abdominal symptoms.

It is surprising with what slight symptoms these cases may prove fatal. The frequent absence of emaciation in children who die thus is also remarkable.

In this variety also the lungs are generally the seat of some of the morbid formation.

Dr. Da Costa, one of the latest writers on medical diagnosis, makes the following observations on acute phthisis:

"The physical signs are not always the same. If the tubercles be scattered through the lungs, no signs are perceived but those of diffused or acute bronchitis. More commonly the signs are like those of chronic phthisis; and associated with the fever and prostration we find the percussion dulness of a deposit, or the evidences of the breaking-up and destruction of the pulmonary tissue, furnished by coarse moist râles and cavernous breathing. When the malady assumes the form resembling chronic pulmonary consumption, the diagnosis from bronchitis is not perplexing; but when its phenomena are similar to those of acute bronchitis, the recognition of the tubercular affection is often impossible. When the dulness on percussion is well defined, acute phthisis might be mistaken for acute pneumonia; but the signs of deposit and of softening in both lungs, the seat of the lesions at the apices, show differences from a disease which, in the large majority of instances, is one-sided, and at the lower part of the lung, which exhibits a characteristic sputum, and in which breaking-up of the pulmonary tissue is so rare. Yet there are cases of acute phthisis that display symptoms and signs very puzzling, and strongly simulating those of pneumonia. Acute phthisis may simulate other affections besides those of the chest. It has at times the delirium, the prostration, the dry tongue, and the bronchial râles of typhoid fever. The diarrhoea and the abdominal symptoms are, however, wanting; yet simultaneous deposit of tubercle in the intestine

may cause these, and in this case the only mark of difference from typhoid fever is the absence of an eruption. It lacks the wild eye, the gastric disturbance, the convulsions of meningitis; or the active delirium it occasionally produces might be attributed to inflammation of the membranes of the brain."

Acute phthisis, then, may simulate acute bronchitis, acute pneumonia, typhoid fever, and meningitis.

The difficulty of distinguishing some cases of acute tubercle from bronchitis is enhanced by the fact that in the former disease the bronchial mucous membrane is often also inflamed, and sibilus, rhonchus, and mucous râle are the sounds heard. Percussion sounds too are by no means always diagnostic, as in this disease the tubercle is often so equally distributed through all parts of both lungs, that there is no standard for healthy comparison.

I believe cases of acute phthisis to be very rare in which the mischief is confined to and implicates the whole of one lung, although Da Costa speaks of such cases as not being uncommon. When this is the case, of course the dulness on percussion will be an aid to diagnosis.

Cases, however, supposed to be phthisical one meets with, in which one lung is indurated throughout, and portions of it have broken down into irregular cavities. But no tubercular matter can be detected, and the pathological appearances are those of a low form of pneumonia with abscess.

Cases too are met with in which no particular dulness, local or universal, over the lungs can be discovered—in which sibilus and râles are the only physical signs, and in which the expectoration is of a bronchitic nature, and free from portions of the pulmonary tissue, and yet in which death will ensue rather rapidly; and the only post-mortem appearances will be a large amount of miliary tubercle in all parts of both lungs, without any trace of softening.

In these cases, hæmoptysis is uncommon, and if it exists, is so slight that it forms no diagnostic mark between this disease and acute bronchitis, as it often occurs in the latter malady. The main points of distinction are the more rapid emaciation, the perspiration, and the tem-



perature of acute tubercle, to which I shall refer immediately. Again, acute phthisis may simulate typhoid pneumonia; and by this is meant not pneumonia of typhoid fever, but inflammation of the lungs with great prostration and typhoid symptoms.

In a case under my care two years ago (case viii.), besides intense prostration and diarrhoea that induced grave suspicion of typhoid fever, the physical signs in both lungs consisted of rather fine crepitation over the lower half of both lungs, with some dulness. After death, tubercle was found in the bronchial and mesenteric glands, the liver, and the spleen; and both lungs were universally studded with small tubercles, which had nowhere become softened, whilst the lung-tissue between the tubercles was healthy. The diagnosis is still more difficult where the lung-tissue between the tubercles is hepatised, as occasionally happens.

The aids to diagnosis are, that in adults double pneumonia is rare, dulness is generally more marked and more rigidly defined than in acute phthisis, the crepitation is more accurately connected with the region of dulness, or is superseded by bronchial breathing only, the expectoration is more hæmorrhagic, and there is absence or diminution of the chlorides in the urine up to a certain stage, which I believe does not occur in acute phthisis, unless there is much concurrent pneumonia. The temperature also varies in the two conditions.

Some five years ago I published a paper in the *British Medical Journal* on the points in common between acute phthisis and typhoid fever. It may therefore suffice to say, that according to the situation of the tuberculous deposit and the condition of blood that induces it, there may be these points in common between the two diseases: rigors, headache, stupor, delirium, subsultus, rapid and weak pulse, gurgling in right iliac fossa, diarrhoea, cough, bronchial râles, emaciation, dry brown tongue, sordes on lips, crops of sudamina.

The points of difference are: 1. The generally greater dyspnoea in acute phthisis (though this may be slight where most of the tubercle is abdominal). 2. The absence of erup-

tion; but this may also be absent in typhoid fever, and I have recorded one instance in which a rose-rash existed in a case that died of acute tubercle; and although Dr. Jenner has never seen rose-spots in acute tubercle, Dr. Waller of Prague has; and Rilliet and Barthez say that very fugitive imperfectly-formed rose-spots are in rare cases present. 3. The shape of the abdomen, which in acute phthisis is supple, and not tense or tub-shaped. I have notes of one case, however, in which, with dark tongue and diarrhoea, there was a tumid belly, and in which a small ulcer existed in the ascending colon, and the small intestine was almost universally smeared with yellowish mucus. Here the physical signs of pulmonary tubercle prevented any doubt as to the nature of the case. 4. Lastly, the temperature, which, though high in both diseases, follows a more irregular course in acute phthisis than in typhoid fever.

The temperature of acute bronchitis is often not raised beyond the normal standard. In those cases in which it is abnormal, it may vary from  $99^{\circ}$  to  $102^{\circ}$ , and will gradually decrease as the patient improves and the bronchial tubes clear.

In pneumonia the temperature will generally be high at the first, and increase up to about the fourth or sixth day, and then fall regularly; the fall not by any means coinciding with the clearing-up of the hepatised portion of lung. If there is any exception to this regular fall of temperature in pneumonia, it will mean that a further portion of lung has begun to be implicated in the disease; a condition which may be traced by physical examination.

In typhoid fever the temperature will be high by the end of the first week, at first with a very moderate pulse, and will keep high for a very indefinite time. One author who has written lately on this subject speaks of its keeping high from the sixth to the fifteenth day; but in one of my cases it was  $102^{\circ}$  on the nineteenth day of the disease; in another,  $104^{\circ}$  on the twenty-fourth; in another,  $102^{\circ}$  on the twenty-seventh; and this height of the thermometer is not uncommon in protracted cases. When, however, it begins to decline, its diminution is regular.

In acute phthisis these conditions are changed. The temperature is high, sometimes very high, but is subject to great and sudden variations. From being high it will fall to  $98^{\circ}$ , and again rise in the course of twenty-four hours. Thus in one case of my own, it fell from  $105^{\circ}$  to  $100^{\circ}$  in the course of twelve hours; and then rose above  $102^{\circ}$ , falling later from  $102^{\circ}$  to  $96^{\circ}$ ; the pulse at the same time beating 84 per minute instead of 120, with a marked relief of all symptoms, and without any hæmorrhagic or other flux, and in eight hours the temperature had recurred to  $102^{\circ}$ . These changes do not occur in either of the diseases above named. In another case of acute phthisis the temperature on one day being  $102^{\circ}$ , fell the next to  $99^{\circ}$ , and rose the day after to  $104^{\circ}$ ; the evening temperature remaining at that point for five days, and then suddenly rising to  $108^{\circ}$ , an unusually high temperature even in this disease. The day after this it was  $106^{\circ}$ , and the following day  $100^{\circ}$ ; rising again the next day to  $104^{\circ}$ . Similar phenomena recurred a little later in the course of the same case.

Such extreme and sudden variations of temperature do not occur, as far as I know, in any other acute disease (except perhaps in cases of extensive hæmorrhage in typhoid fever, when the temperature may fall six or seven degrees, and again rise in twenty-four hours); and in cases of acute phthisis, which are usually difficult, and often extremely obscure, the generally high temperature, which may vary many times in the course of the disease very suddenly to the extent of six or seven degrees, may be found a valuable aid in diagnosis.

A second important fact with reference to temperature in acute phthisis is, that it bears no regular relation with the number of respirations or of the beats of the pulse. Thus a temperature of  $103^{\circ}$ , which under usual conditions would correspond with a pulse of 110, may be found in a patient in acute phthisis with a pulse of 90 or even 84, and with the respirations only very slightly raised above the normal standard.

Does the thermometer help us in the prognosis of such cases? Dr. Aitken states these two propositions



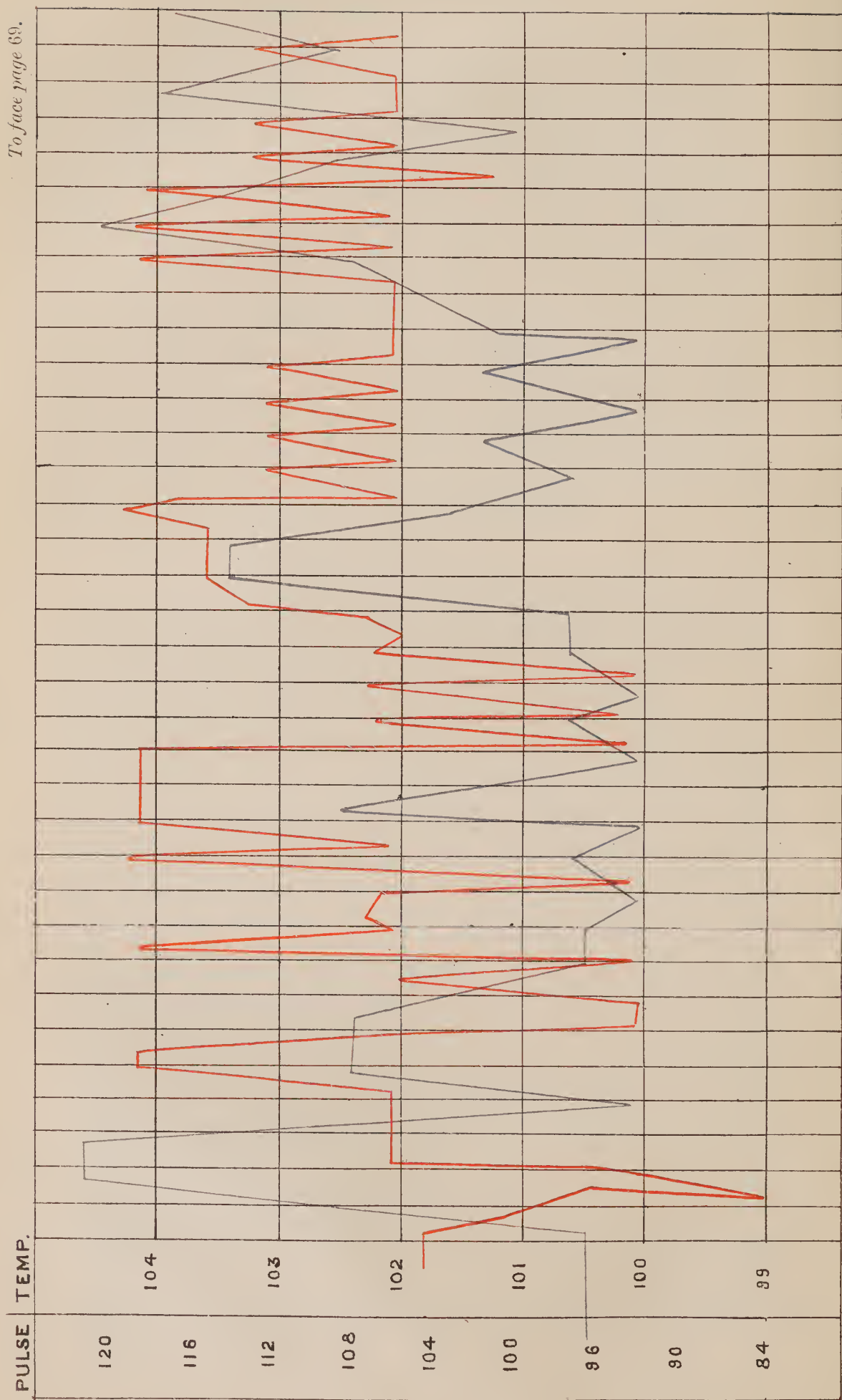
as axioms: "In tuberculosis an increase of temperature shows that the disease is advancing, or that untoward complications are setting in;" and "in tuberculosis, especially in its acute form, the persistent maintenance of a uniformly high temperature will alone show that no arrest in the progress of the disease has occurred." Whilst I fully agree in this, yet I believe very rapid loss of weight and tendency to speedy death may be coincident with a slight increase of temperature. Thus, in one case the evening temperature never exceeded  $100^{\circ}$ , and the morning  $98^{\circ}$ , or rather below; and yet the loss of weight amounted to three pounds a-week. In this case the rapid loss of weight was a more formidable symptom than the slight increase of evening temperature. In illustration of this subject the following cases are subjoined.

### *General Tuberculosis.*

CASE I.—Mary B., æt. 25, single. Ill for the last three months with headache and cough and amenorrhœa. Some emaciation. Both lungs show signs of softened tubercle at upper portions. The weakness and emaciation progressed *pari passu* with increased mischief in both lungs; and she sank after an illness altogether of about four months.

*Post-mortem examination.*—At apex of left lung a cavity full of grumous matter, as large as a walnut, and several smaller cavities. The whole lung infiltrated with yellow tubercle. Bronchial glands enlarged; in some a few spots of tubercle. Right lung equally infiltrated with tubercle, but the cavities at its apex were all very small. At about a foot and a half from the ileo-cæcal valve of the intestines was an ulcerated patch, at the base of which, beneath the peritoneum, could be seen tubercle. The whole space for about three inches above the valve was ulcerated, as if several ulcers had united. The transverse colon was pitted throughout with small ulcers. The descending colon was much more affected. Several ulcers of very considerable size existed in its whole extent. They were ragged, and had in several places penetrated through the muscular coat. In six places these ulcers had formed large perforations. The rectum was deeply and extensively ulcerated. Mesenteric glands a good deal enlarged. Liver very fatty; weight 4 lb. 2 oz. Supra-renal capsules, spleen, and pancreas healthy. Left kidney slightly tuberculous on its external surface: on section the pyramidal portion was found changed into hard tubercle. Right kidney healthy. Right ovary very much diseased, being nothing more than a loose bag filled with tuberculous matter. All the structures between it and the uterus were thickened. The ovary itself was found lying in the largest perforation of the colon. Left ovary smaller than the right, but entirely changed into cheesy tubercle. Uterus rather large; its fundus was







applied against the largest perforation in the colon, filling up the orifice. On opening its cavity the whole of its interior was found mammillated, with reddened spots of mucous membrane appearing here and there through a coating of tubercle. Vagina deeply and extensively ulcerated.

CASE II.—William S., æt. 30, married, soldier. March 14th. Has served mostly in the Mauritius. Has been a sober man. Has had rheumatism several times. About eight weeks ago thinks he took cold. Now coughs, with expectoration of thick phlegm. Some dulness in upper fourth of right lung. Increased vocal resonance and moist crepitus all over right side, especially at apex, and over the upper part of right lung behind. Breathing poor in both lungs posteriorly, and in upper part of left in front. Night-sweats. Rapid emaciation. Great pallor. April 7th. Some diarrhœa. 12th. Purpuric spots over both legs. 13th. Epistaxis. Ascites is commencing, and great tympanitis. 30th. Died. The purpura had disappeared, and he had but little diarrhœa.

*Post-mortem examination.*—Right lung: A very large amount of yellow tubercle all through the lung. Many cavities in the upper lobe not lined by any false membrane. Lower lobes compressed by fluid and quite splenified, but containing a good deal of miliary tubercle. Left lung like the right, except that the breaking-down was less advanced, there being only one small cavity at the apex. Bronchial glands swollen. Much old and recent pleurisy on both sides. Much clear fluid in abdominal cavity. Liver healthy. Spleen with much tubercle on its external surface. Kidneys, supra-renal capsules, and pancreas healthy. An immense amount of ulcerations of the small intestines. Several round ulcers in duodenum. Peyer's patches all ulcerated, and many solitary glands standing out prominent with much white tubercle. Mesenteric glands large.

This case is interesting as illustrating the variations of the thermometer, and also as showing two forms of tubercle in one lung.

CASE III.—Robert H., æt. 47, engine-fitter, married. Ill now fourteen weeks, having been first attacked whilst working at Nantes. At the beginning of his illness he had dropsy of his lower limbs and ascites, but is now free from both. Dec. 19th. Has now fine râles at base of each lung. Abdomen tumid. Abdominal muscles very tense. Some hardness across hypochondria and epigastrium. Urine scanty; s.g. 1021. No albumen. Some bile. Tongue coated. Bowels regular. Motions contain bile. Some icterus. 27th. The jaundice has disappeared. Jan. 5th. Slight diarrhœa. 8th. Is low. Slight delirium at night. Pains in hypogastrium. Died on 31st, comatose, after a gradual failing of strength.

*Post-mortem examination.*—A little subarachnoid fluid. Brain quite healthy. Left lung universally adherent to the walls of the thorax. Lung itself covered with a thick fibrous covering of thickened pleura,

and engorged with frothy serum. Right lung not adherent. Two little nodules of pigment in the middle lobe. Lung engorged with frothy serum. No tubercle in either lung. Bronchial glands swollen and very black. Heart covered with fat all over; otherwise healthy. Intestines universally glued together by recent lymph. The whole of the peritoneum profusely studded with small white spots, varying in size from a pin's-head to a large pea. These spots on the surface of the intestines were found on section to extend into the muscular coat of the intestine. The same condition existed much on the capsule of the liver, and also in the substance of this organ, from which in places it could be enucleated entire. Spleen very soft. Kidneys healthy, except that each kidney contained several similar spots, which were here softer than elsewhere. Bladder with rather thickened walls, but internally healthy. Mesenteric glands swollen and hard, and some of them beginning to be cheesy. The omentum was transformed into a hard thickened mass. The spots in the kidneys, mesenteric glands, and on the intestine presented under the microscope all the characters of tubercle.

This, perhaps, can hardly be considered a very acute case; but it is remarkable as showing a total absence of tubercle in the lungs.

#### *Tubercle mainly of Lungs.*

CASE IV.—Mary W., æt. 8. Feb. 11th. Has been ill two months. Is much emaciated. Cough for two months. Breathing nowhere very good, but worse at each apex. A little moist sound may be heard below right clavicle. No night-sweats. Her mother has had fourteen children, thirteen of whom have died tuberculous. She was put on cod-liver oil, and gained  $5\frac{1}{2}$  lb. in a month, improving much in appearance. Respiratory sounds were much the same, except that the moist sounds had disappeared when she went out of the infirmary, April 10th.

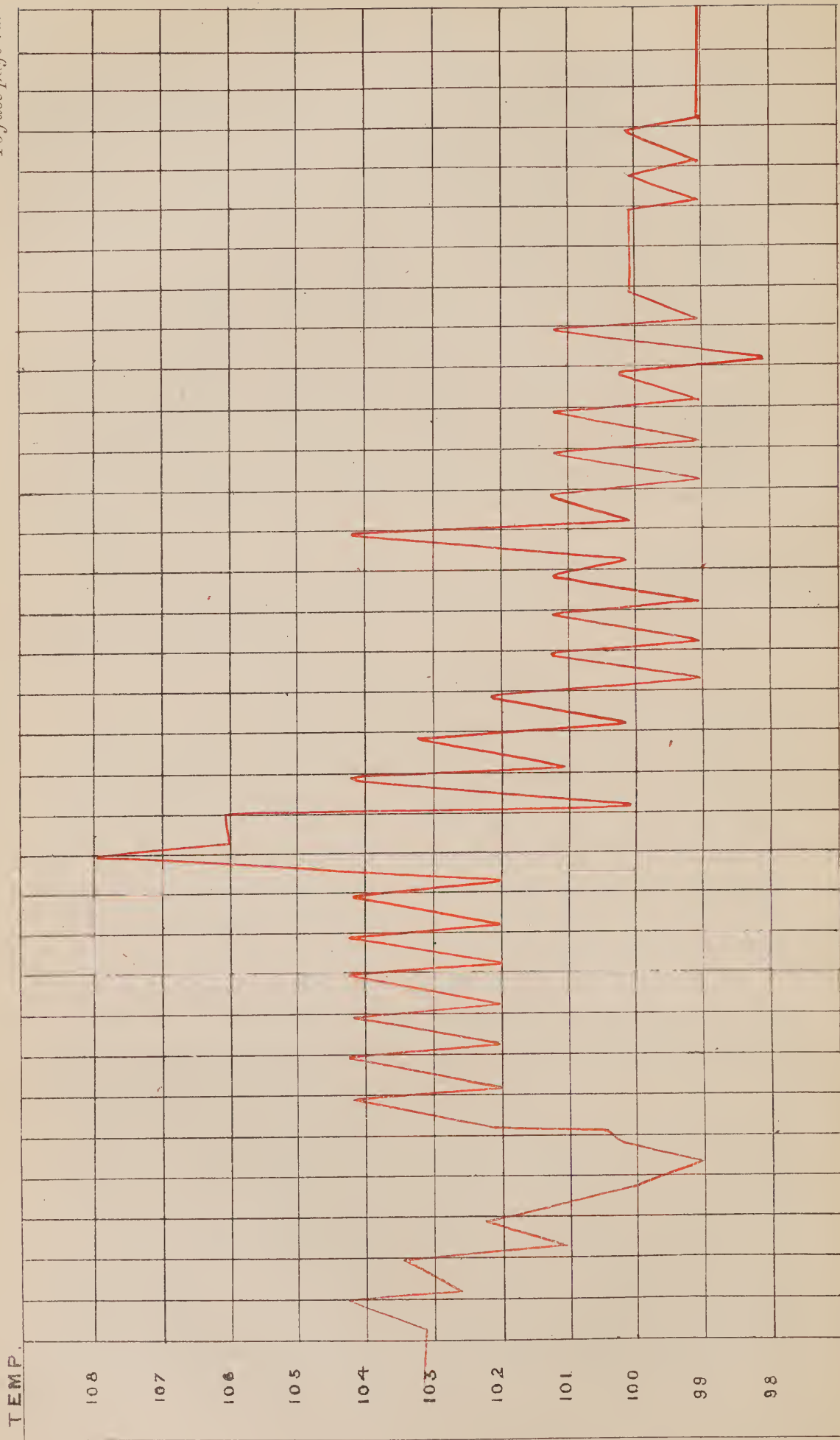
In this case there was evidence of rapid phthisis; but its advance was manifestly checked, for a time at least.

CASE V.—Sarah Ann W., æt. 22, dressmaker, dark complexion. May 15th. Ill four months with amenorrhœa, cough, emaciation, nausea, and constipation. Has had two attacks of hæmoptysis. She gradually sank without any diarrhœa, and died July 8th.

*Post-mortem examination.*—Left lung contained a few cavities in upper lobe; a little tubercle in lower lobe. Right lung very adherent at apex to walls of thorax. A good deal of fluid in right pleural cavity. All the lobes infiltrated with tubercle, and riddled with cavities of all sizes. Bronchial glands enlarged, tuberculous, and in one instance cretified. Liver very soft and yellow. Kidneys and suprarenals healthy. Intestines healthy, except that in the ileum; six of Peyer's patches contained a little tubercle, but were not ulcerated. Mesenteric glands not enlarged. Uterus healthy; but its lining mucous membrane was the seat of some dark pigment. Ovaries healthy.



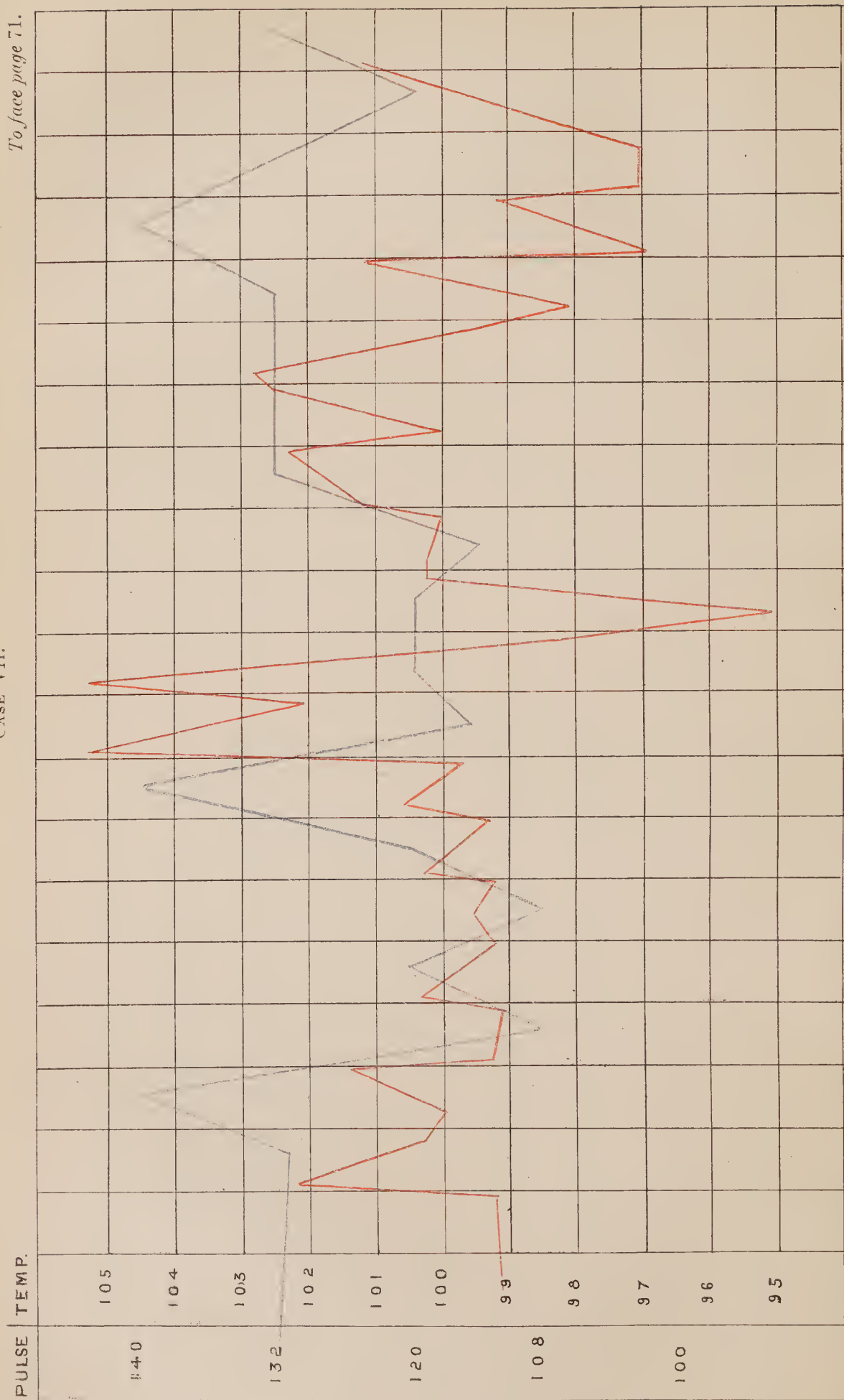






# CASE VII.

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CASE VI.—Mark T., æt. 17, keeper. October 27th. Has been ill five weeks with gradual wasting and slight cough. No hæmoptysis. Very little expectoration. Some diarrhœa. Abdomen neither tumid nor tender. Breathing everywhere poor. Some dulness at bases of each lung. Urine full of lithate; no albumen. 30th. Motions firmer. Moist crepitus on inspiration over all the left lung. No good resonance anywhere over lungs. Nov. 5th. Breathing now tolerable all over right lung, and it can be heard down to base of left also; but is deficient at lower fourth of left lung behind. Motions firm. Is stronger. 10th. Much diarrhœa for three days. 12th. Bowels open three times. Abdomen flat. 16th. Bowels open whenever he attempts to micturate. Tongue clear. 22. Is taking cod-liver oil. Bowels steady. Breathing clearer, except at the bases of the lungs, but nowhere good. 30th. Has gained 6 lb. in weight in a fortnight. Dec. 15th. Gains 3 lb. a-week. Breathing still poor. Is going into the country. Treatment consisted of small blisters, linimentum iodi, quinine, and cod-liver oil.

CASE VII.—Louisa M., æt. 11. March 11th. Has never been a strong child. Now has complained for the last fortnight of pains in the chest, cough, emaciation, and loss of appetite. Gurgling and tubular respiration under the left clavicle; moist crepitus and dulness in second left interspace; moist crepitus halfway down the front of the right lung. Much muco-purulent expectoration. The cough and expectoration increased, and she died April 2d, without any diarrhœa.

*Post-mortem examination.*—Trachea healthy. A very large number of bronchial glands enlarged, and some rather tuberculous; one a mass of hard cheesy matter. Left lung so adherent at apex that it was torn. A cavity at apex large enough to hold a small orange. No false membrane lined it. Many other cavities of various sizes in upper lobe. Lower lobe infiltrated with tubercle. Lung very adherent everywhere to thorax and diaphragm. Right lung contained one cavity at apex, the size of a small walnut. All the lung infiltrated with tubercle, except about three inches at the base, where the lung was in a state of red hepatitis. Heart easily torn. The side of the ileo-cæcal valve towards the colon was a good deal ulcerated, and contained also some spots of tubercle softened, which had not ulcerated through the mucous membrane. A little lower down in the colon were a few more ulcers; one of them, an inch and a half long, was nearly cicatrised. In the ileum none of Peyer's patches were affected, but a few points of tubercle appeared under the mucous membrane. The other viscera healthy.

CASE VIII. *Simulating typhoid fever.*—Elizabeth F., æt. 16, servant; dark complexion. Aug. 26th. Has been ailing for two months, having been overworked in her last situation. For the last week or ten days has had shortness of breath, and has felt very weak. No rigors. On admission had coarse râles all over chest in front and behind. No very good resonance at apices of lungs. Pulse 120, weak. Face very dark. Very little cough. No expectoration. Bowels regu-

lar. Catamenia absent this month. Some heat of skin. No spots. No abdominal tenderness. Tongue dry. Much thirst. No appetite. 27th. Diarrhœa last night. Breathing rapid. Pulse 132, weak. No delirium. 28th. Some sleep. More diarrhœa. A little ileo-cœcal tenderness. No spots. Tongue very dry. Pulse 120, weak. No delirium. Râles in lungs the same. 29th. Very fine crepitation halfway up each lung from base anteriorly. Less diarrhœa. No spots. Tongue cleaner. Pulse 122, weak. Very dark in face. 30th. Respirations 64. Pulse 140, weak. Breathing rather clearer in each lung. Face not so dark. Tongue clean. Less diarrhœa. Motions firmer. 31st. Pulse too rapid to be counted. Respirations 70. Very dark in face. Coarse crepitus over the whole of the front of lungs. Breathing clearer behind. Bowels quiet. Is conscious. Sept. 1st. Had distressing night, with much dyspnœa. Respirations 60. Pulse 132. Speaks sensibly. Is not quite so dark in face. Bowels open once. 2d. Dozed during the night. Respirations gasping. Seems dying. 3d. Died at 2 A.M. Was sensible to the last.

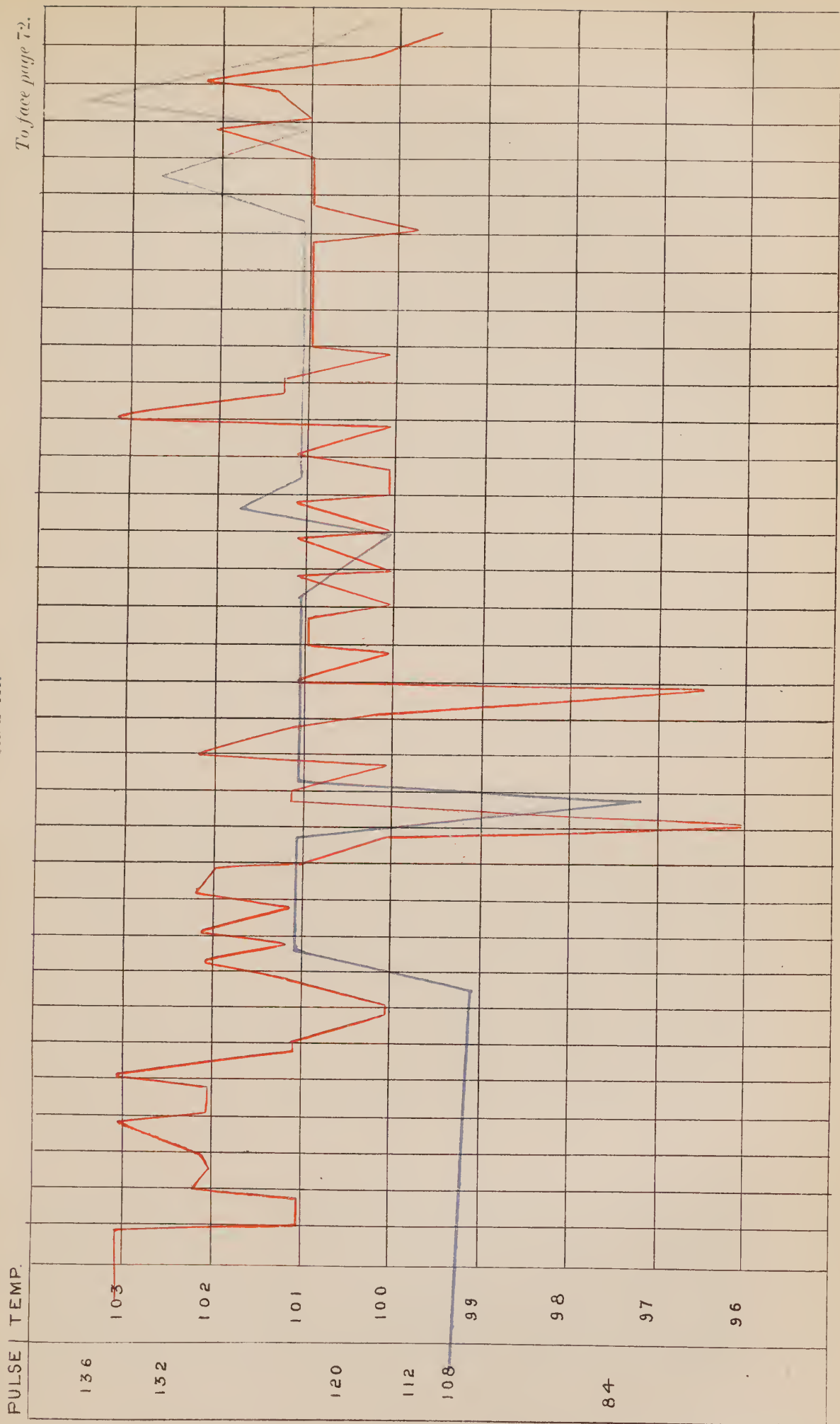
*Post-mortem examination.*—Some slight adhesions all round left lung, and at apex of right. Both lungs universally studded with small tubercle, which at apices was a little soft, but had nowhere formed cavities. Bronchial glands enlarged, and full of old cheesy tubercle. Heart thin and flabby. Liver speckled with small tubercle, the left lobe especially. Spleen also speckled with tubercle. Mesenteric glands rather large. Peyer's patches above valve rough and pitted, but not ulcerated; other organs healthy.

CASE IX.—Jane A., æt. 17, servant; single. Jan. 17th. Ill ten days, with weakness and cough. No hemoptysis. Expectoration frothy. Tongue white. Digestion good. Catamenia have been absent for six weeks. Fine râles over both lungs. Mother and sister both died of phthisis. Feb. 2d. Coughs a good deal. Very little râle. Moist crepitus at left apex. Breathing poor at right apex. 21st. Often sick; is very pale and emaciated. Breathing worse throughout both lungs. March 3d. An attack of hemoptysis. 19th. Died. No diarrhœa throughout.

*Post-mortem examination.*—Left lung: All the upper lobe infiltrated with tubercle, which had almost universally softened and formed small vomicæ, not lined by any false membrane. A small edge of the lower lobe free from tubercle, but the rest of the lower lobe profusely studded with miliary tubercle. Right lung so adherent at apex that some of it was left attached to the thorax when the lung was removed. The whole of the two upper lobes broken down into a pultaceous mass, like a lung just passing into a state of gray hepatisation. Lower lobe not free from tubercle. Liver fatty. Spleen healthy. Pancreas small. Kidneys pale. Mesenteric glands rather enlarged. Much ulceration of Peyer's patches, especially just above the valve. In some of the patches tubercle was visible at the base of the ulcers. The ulcerations extended very far up the intestine. The colon was a good deal ulcerated from the valve to about halfway across the transverse colon. Some recent peritonitis.

# CASE IX.

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CASE X. *Simulating typhoid fever*.—William S., æt. 44, draughtsman. Feb. 17th. Has been a drinking man. Was admitted with symptoms of acute bronchitis. March 1st. Breathing much better, but abdominal symptoms are showing themselves. Ileo-cæcal tenderness. Tongue very coated. Sordes on lips. Some diarrhœa. Tumid belly. Pulse very weak. 3d. Wanders a little. No spots. Died on the 6th.

*Post-mortem examination*.—Right lung very full of tubercle. A chain of vomicæ about the size of walnuts in upper lobe. Puckering and adhesions at apex. Left lung full of tubercle. No vomicæ. Liver, left lobe hard and gritty. All through the liver were little collections of bile, locked-up in a duct which had expanded into a kind of cyst. Hepatic veins full. Portal vein empty. Kidneys, spleen, supra-renals, healthy. Small intestines congested in parts, and almost universally smeared with yellowish mucus. Large intestine healthy, except that there was a small ulcer about halfway up the ascending colon.

CASE XI. (not precisely one of acute phthisis, but added here on account of the pathological appearances).—Mary G., æt. 40. June 21st. Ill two months, with weakness. In the last fortnight has had a hard painful swelling just behind and below the right ear. Now has headache, thirst, dry furred tongue. No appetite. Bowels confined. Sight dim. Wants to swallow every moment. The tumour suppurated, as also did a similar one on the left side. She went out at the end of August. Dec. 20th. Fell out of bed, and was admitted insensible, and died in a few hours.

*Post-mortem examination*.—A good deal of subarachnoid fluid. Brain-substance tolerably firm, except the roof of the lateral ventricles and the septum, which were nearly deliquescent. A good deal of effusion in ventricles. Adhesions at apices of both lungs. Left lung puckered at apex, but no trace of tubercle beneath the puckering; only some slightly hardened cicatrices. Extending through the whole thickness of the lower part of the upper lobe was much hard yellow tubercle. Less tubercle in right lung. Bronchial glands enormously enlarged and tuberculous. Some of them had suppurated. The serous covering of the diaphragm on the side of the abdomen was thickly covered with miliary tubercle. A few spots of miliary tubercle in the liver, and very many in the spleen. Supra-renal capsules studded in their substance with miliary tubercle. Several fibrous tumours of various sizes attached to the uterus.

CASE XII. *Simulating typhoid fever*.—William G., æt. 18, labourer. August 28th. Ill ten weeks, but worse for the last six weeks, with cough and diarrhœa. Is pale and thin. Night-sweats. Occasional hæmorrhagic expectoration. Breathing poor, especially under right clavicle, and much dulness there. 30th. Some diarrhœa and abdominal pain. Sept. 1st. Bowels not open for forty-eight hours. Is free from pain. 3d. Diarrhœa and pain have recurred to-day. 6th. Bowels open once to-day, loosely. Ileo-cæcal tenderness. No spots. Abdomen not tumid.

13th. Is rapidly emaciating. Complains of much pain in right iliac fossa and beneath the umbilicus. Bowels open once daily, but very loosely. 14th. Vomiting of green fluid has set in. 16th. Died. The vomiting and purging went on to the last.

*Post-mortem examination.*—No adhesions round lungs. Both lungs profusely studded with miliary tubercle, equally in all the lobes. A little puckering at apex of right lung. Liver rather large and greasy. Spleen twice the usual size. Mesenteric glands very much enlarged and full of soft tubercle, which in many glands had suppurated. Colon and ileum thickly covered with tuberculous ulcerations, in some places as large as a florin, occupying in the ileum the seat of Peyer's patches. The bases of the ulcers were full of cheesy tubercle, and from them lines of absorbents filled with tubercle could be traced to the glands. Several of these ulcers had given way and formed perforations, and seemed connected with the subjacent glandular abscesses.

CASE XIII.—Henry T., æt. 33, compositor. Sept. 4. Ill thirteen or fourteen weeks. Has given up work for five weeks. Great emaciation. Digestive organs healthy. Night-sweats. Breathing poor; and prolonged expiration over upper half of both lungs in front; good breathing behind right lung, but much gurgling, pectoriloquy, and dulness at base of left lung behind. His father died of phthisis at the age of 26, after only six weeks' illness. Oct. 12. Has become terribly emaciated, with occasional attacks of diarrhœa. Went home, and died in a few days. No post-mortem examination.

CASE XIV.—Ernest J., æt.  $4\frac{1}{2}$  months. A particularly stout and large child. Had been dry-nursed, and fed from the second month with farinaceous food. Died after medical treatment of two days, but had been ailing for six days previously. During the last forty-eight hours had constant sickness and diarrhœa, which could not be checked by any remedy. A sister had died about the same age of tuberculous meningitis.

*Post-mortem examination.*—The abdomen only was allowed to be examined. Kidneys, liver, and spleen healthy. Four of Peyer's patches just above the ileo-cæcal valve were rather deeply ulcerated, and contained a little white matter at their base. Solitary glands in the same situation either ulcerated, forming little deep pits, or else standing out prominently, full of white tuberculous matter. The whole of the large intestine profusely sprinkled with similar ulcerated solitary glands. The thickness of the walls of the intestine somewhat increased throughout. Mesenteric glands much enlarged. Body very fat.

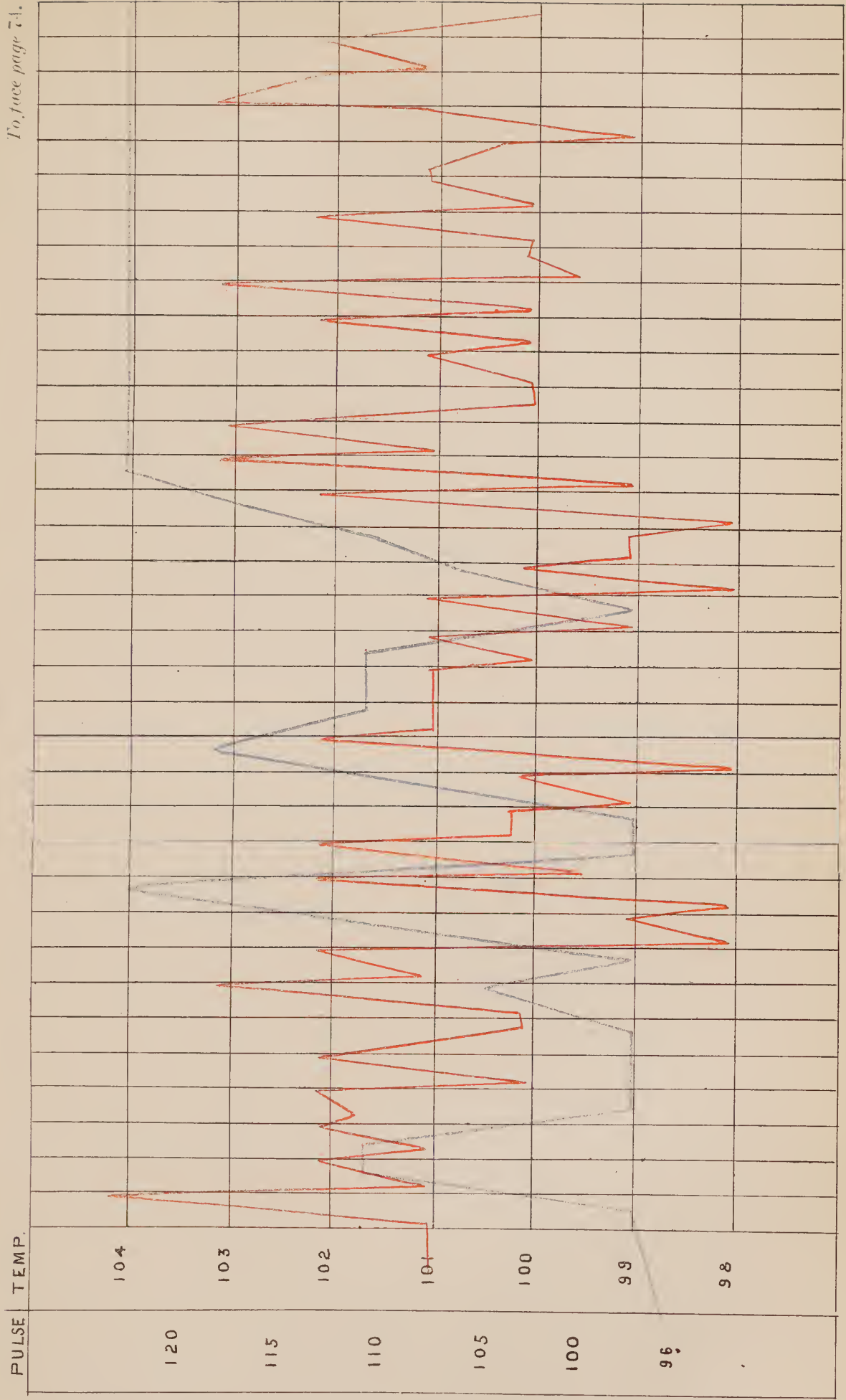
CASE XV. *Another instance of tubercle existing.*—A fat little boy, about five months old, was brought into the Bristol Infirmary in a fit, in which he died.

*Post-mortem examination.*—A very fine fat child. Both lungs full of miliary tubercle. Bronchial glands large and tuberculous. Five or six of Peyer's patches ulcerated. Some solitary glands full of whitish tubercle, others ulcerated. The greater part of the mucous membrane of the large intestine full of little round pits.



CASE XIII.

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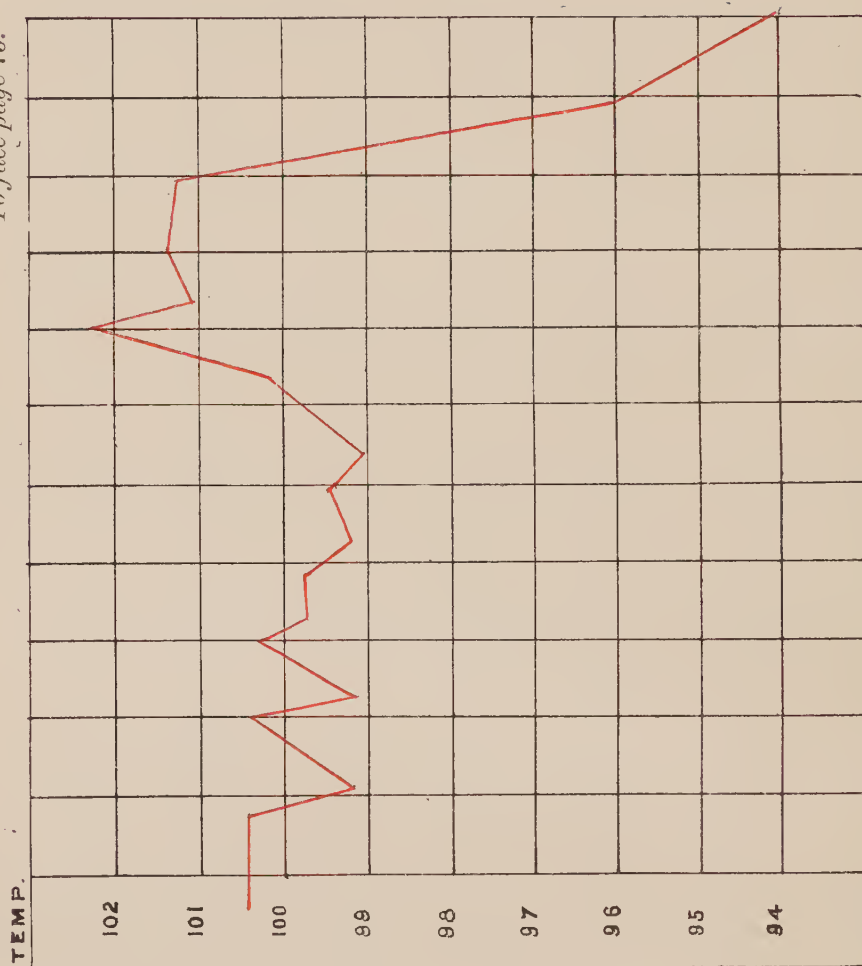






# CASE XVII.

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Another form in which acute tubercle may be studied is that of acute tuberculous meningitis; but in this variety the thermometric conditions differ from those met with in other forms. The following cases may illustrate this subject.

CASE XVI. *Simulating typhoid fever*.—George B., æt. 15. April 15. Has had at least two rheumatic attacks. Is now admitted into the Bristol Infirmary, very faint, and disliking to be moved. A loud systolic bruit at apex of heart. Pulse rather weak. Slight cough. 17th. Sleeps much. Complains of general pain if moved. Tongue dry. Skin rather hot. No spots. Abdomen not tumid. 19th. Gets more stupid, and wanders a great deal. Last night was noisy for a time, and tried to get out of bed. 20th. Sweats profusely. Wanders. Abdomen covered with a multitude of red spots, not exactly like the eruption of typhus or typhoid. Tongue dry. Is thirsty. 23d. Died this morning.

In this case there was an entire absence of convulsion. It simulated typhoid very closely, except in the shape of the abdomen.

*Post-mortem examination*.—Cranium: Dura mater healthy. Convex surface of hemispheres healthy. White substance of brain soft throughout, and creamy in the immediate neighbourhood of the lateral ventricles, in which a good deal of clear fluid. Septum creamy. All the nerves at the base of brain matted together in a mass of granular lymph, which extended from the upper portion of the medulla oblongata, covered the whole of the pons, and indeed the whole portion of the base of the brain enclosed in the circle of Willis, running up throughout the whole extent of the fissure of Sylvius on each side. No masses of tubercle in any part of the encephalon. Thorax: Both lungs crepitant throughout, and floated in water. Through their whole extent was diffused equally a very large amount of miliary tubercle. Bronchial glands formed a large hard mass, in a state of cheesy degeneration. Mitral orifice of heart admitted easily the tops of four fingers. Abdomen: Much miliary tubercle on peritoneal covering of diaphragm. A few very minute spots of similar character were scattered over the capsule of the liver. Spleen rather enlarged, and throughout its substance as well as on its capsule were very numerous miliary tubercles, as large as those in the lungs. Gastro-intestinal canal healthy throughout. Kidneys had a good many little tuberculous masses scattered through their substance, and some few attached to their capsules.

CASE XVII.—Henry G., æt. 12; light complexion. Sept. 23d. Had typhoid fever severely twelve months ago. His brother has been under my care with hæmoptysis and tuberculous lungs; and several of the family have been tuberculous. Taken ill three days ago with rigors and headache. Now has some headache. Is quite sensible. No convulsion or paralysis. Tongue dry and coated. Lips dry. Bowels con-

finer. Abdomen not tumid. Pulse 90, fair strength. No cough. No spots. 25th. Breathing a little sibilant. Has had very little sleep. 27th. Very little sleep. No abdominal symptoms. Bowels open. 29th. Pretty well yesterday, but has had a restless night; and to-day complains of headache, is rather deaf, and wanders a little. Tongue coated and dry. Sordes on lips. Eyes natural. 30th. Screamed a good deal in the night, and tried to get out of bed. No strabismus. Oct. 1st. Has had a more quiet night. Is partially comatose. No sickness. No convulsion. No strabismus. 2d. Is very quiet. Quite insensible. Occasional slight strabismus. 4th. Died.

In this case there was a total absence of vomiting. Many of the symptoms simulated typhoid fever, but the thermometer at once afforded a safe means of diagnosis.

*Post-mortem examination.*—Cranium: Dura mater healthy. Convex surface of hemispheres dry, but traversed by very full veins. Arachnoid over whole of base of brain very much thickened, and some deposit of lymph in fissure of Sylvius on each side. Some fluid in ventricles; and considerable softening of fornix and crura cerebri. No tubercle in brain or on meninges. Thorax: Lungs very congested, and ecchymosed all over their surface. No tubercle. Bronchial glands in a state of cheesy degeneration. Abdominal viscera healthy.

The condition of the bronchial glands, and the family history of the patient, allow us to class this case as one of tuberculous meningitis; and I know no symptom which will enable us to decide during life whether meningitis in a tuberculous subject is accompanied with the growth of tubercle in the brain or membranes, or not. This condition of meningitis in a tuberculous subject, without the appearance of tubercle inside the cranium, is more decidedly illustrated in the account of the following post-mortem examination.

CASE XVIII.—Maria S., æt. 18. The notes are very imperfect. She had been screaming at intervals for two days before death. Was unconscious. Had frequent convulsions, always of the right side.

*Post-mortem examination.*—Dura mater healthy. Arachnoid on convex surface of the brain very milky, with much subarachnoid fluid. The veins on the convex surface of the hemispheres distended with partially coagulated blood. Ventricles healthy. No tubercle. Cerebral substance tolerably firm. No meningitis at base of brain. Both lungs full of miliary tubercle. A good deal of minute tubercle over the mesentery.

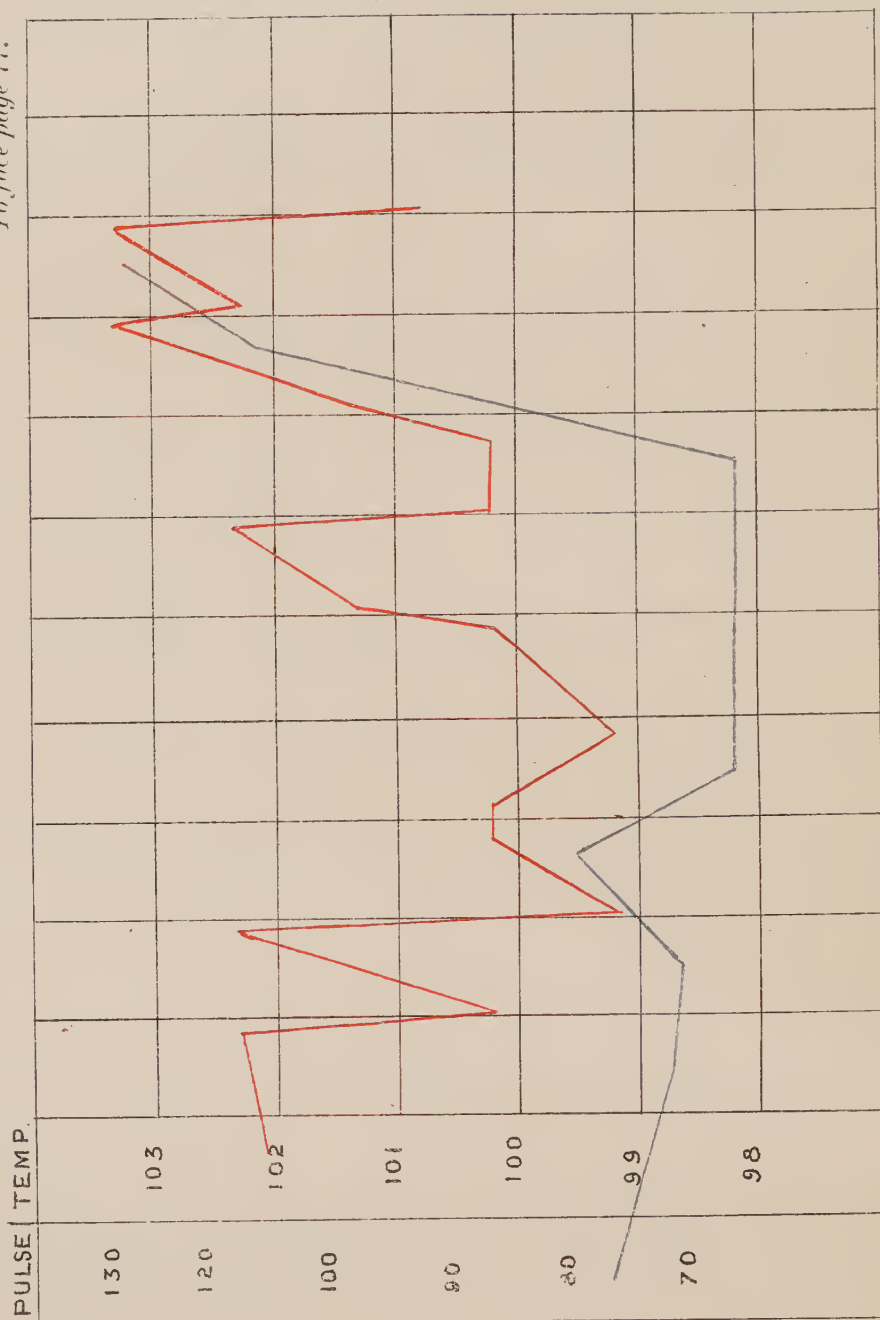
The next case admitted an element of uncertainty during life, by reason of a discharge from the ear. It





# CASE XIX.

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was not unreasonable to suppose that the meningitis might have been connected with this condition rather than with tubercle; but it was not so.

CASE XIX. — Charles B., æt. 10; light complexion. Has been ailing for twelve months; and lately has been attending the General Hospital for weakness. Was taken worse five days ago with vomiting and headache. Has had discharge from left ear for several months. Admitted into Bristol Infirmary, Sept. 26. 27th. No abdominal symptoms. Some headache. No photophobia. A certain dimness of sight. No decided strabismus; but there seems to be a slight want of coincidence in the axis of vision of the two eyes. Slept during night. No delirium. No convulsions. 29th. Decided convergent strabismus. 30th. Partial coma; but he takes food and medicine. No screaming. Oct. 1st. Much convulsion. More decided coma. Lies with his head dragged backward, and with face turned towards the left shoulder. 2d. More convulsion. Will not swallow. 4th. Much pus was discharged through the left ear, and he then recognised his mother; but died on the 6th.

The remission in this case is by no means unparalleled. Rilliet and Barthez say, "We have seen complete recovery of intelligence after delirium, and even after coma, and an apparent restoration to health. But in these cases the pulse continued irregular, the abdomen was retracted, and the look was fixed."

*Post-mortem examination.*—Cranium: Dura mater healthy. Arachnoid on convex surface of the hemispheres healthy. Arachnoid at base, and especially about the optic commissure, thickened and covered with yellow lymph; thickened also along the fissure of Sylvius on each side, and on the inferior surface of the cerebellum. Along the fissure of Sylvius on each side were many very minute tubercles, apparently attached to the small vessels of the pia mater. A good deal of sanious fluid in ventricles; even the fourth being distended by it. All the central white matter of the brain more or less softened, and in places creamy. Sinuses very full of dark blood. Petrous portion of left temporal bone healthy. Thorax: Many small nodules of tubercle on the pleura, especially of the left side. Both lungs infiltrated with minute gray tubercle, especially in the upper lobes. The lower lobe of the right lung not only contained much of this tubercle, but broke down under moderate pressure into a pulpy mass. Many ecchymoses on the surface of both lungs. Bronchial glands in a state of cheesy degeneration. No abdominal tubercle.

The following cases are those of persons who had passed childhood.

CASE XX.—Ann F., æt. 17; servant. Has lived two years in the



situation she left to come into hospital, during which time she has complained but little of illness. For fifteen months of the time she never menstruated, but about four months ago the catamenia appeared and lasted fourteen days; menstruation did not recur until a fortnight ago, and then ceased after only a few hours. From this day she dates her present indisposition. Her mistress states, that from the time of entering her service she had a peculiar cast of countenance, and hesitation of speech, frequently asking to have a question repeated to her a second time. Her appetite was always enormous, and the bowels confined. Has now had pains in each temporal region for a fortnight. Within the last week has taken objections to various things, particularly to one of the drawing-room windows. Worked up to yesterday, when she became giddy, faint, and sick, and had pains in region of the umbilicus. Talked rather wildly in the afternoon. Skin hot, but moist. Pulse 54, small and weak. She became delirious the day after admission, and on the fifth day was maniacal, with dilatation of right pupil: and gradually became comatose; dying on the eleventh day after leaving work.

*Post-mortem examination.*—Dura mater healthy. Arachnoid on convex surface of the brain healthy. The surface of the convolutions were very dry, and presented, chiefly at the upper and posterior parts of the cerebral hemispheres, minute yellow specks of tuberculous matter. The whole surface of the cerebellum presented these deposits to a marked extent. The subarachnoid spaces at the base of the brain were greatly obscured by the presence of yellow fibrine within them, and opacity and thickening of the arachnoid itself. No other deposit was found in the substance of the brain. The ventricles were excessively distended with very turbid serum, and their walls very much softened; the foramen of Monro being very large. Pleural adhesions existed on both sides, especially on the left. In the middle of apex of left lung were a few small tuberculous masses. On one side the bronchial glands contained much tubercle. Rest of the body healthy.

CASE XXI. is one of general tuberculosis; but inasmuch as the prominent symptoms for the last few days of life were cerebral, it may be classed in the present series.

Elizabeth D., æt. 20; servant. Has been a strong healthy girl until four months ago, when she came from the country into town service. Has not menstruated since she came to town. During this time she has complained of pain in back and loins, but this has been more intense for the last three weeks. She says that she has lately lost flesh. Was sick yesterday. During the first week after admission she cried very much from pain in the back. On the eighth day began to have pain in the head, and to be slightly delirious. The delirium became maniacal, and she screamed hysterically if touched ever so gently on any part of the body. Very wild look. Strabismus and inability to stand the day before death. Died comatose the fourteenth day after admission.

*Post-mortem examination.*—Cranium: Arachnoid on upper part of the brain healthy. Upper cerebral convolutions on each side seemed

somewhat flattened. At lower and left part of left cerebral hemisphere has one place where a slight amount of fluid and recent fibrine existed in the subarachnoid spaces. At base of brain, and corresponding to floor of third ventricle, and throughout the entire region whence the cerebral nerves have their apparent origin, the arachnoid was opaque and thickened, with much fibrine effused beneath it, matting together all the nerves. The subarachnoid tissue about the fissures of Sylvius was also occupied by yellow fibrine. Lateral ventricles very large and distended with very turbid serum. Foramen of. Monro very large, and septum lucidum exceedingly thinned. Fornix slightly softened. Thorax: Pleural adhesions on both sides. Both lungs congested, and full of miliary tubercle. Abdomen: The same growth covered the peritoneum opposite the liver, and was found in the liver, spleen, and kidneys.

The next case is somewhat peculiar as having extended over a period of three months, and also because the main symptoms were more or less intermittent.

CASE XXII.—Henry B., æt. 24; tailor. Ill one month with pain in forehead. No cough. When first examined in recumbent position, a sharp blowing systolic murmur was heard at base of heart, travelling up towards the left shoulder. A little later he had sickness; then intense pain, chiefly at back of head. Head jerks backwards at every beat of the heart. Much cerebral throbbing. Temporary relief from blisters, cold to head, and purgatives; but eventually more sickness, diplopia, which, however, was intermittent, and increased headache. Then almost total freedom from pain and all morbid symptoms, and he was able to be out; but he died suddenly in a fit three months from the commencement of his illness. No bronzing of skin.

*Post-mortem examination.*—Dura mater externally seemed healthy; internally it was firmly adherent to the subjacent tissues at the spots below mentioned. Veins of convex surface of hemispheres turgid with blood. On left hemisphere, about middle of brain, was a spot of tuberculous matter the size of a filbert, which seemed to be immediately connected with the vessels of the pia mater, to have become adherent on the one side to the dura mater, and on the other to have extended through the gray matter for a few lines into the white. The two lateral and third ventricles much distended with clear fluid containing a few small white flakes. Foramen of Monro enlarged sufficiently to contain a small nut. Walls of ventricles very soft. Optic thalami tolerably firm. Corpora striata excessively pulpy. Pons and medulla oblongata everywhere rather soft. On anterior lobe of right hemisphere, just on the lateral surface, was another tuberculous spot the size of a nut. On the external surface of the cerebellum, close to the flocculus on left side, though not involving it, was a larger mass of tubercle, dipping into the structure of the cerebellum, and uniting this organ to the posterior lobe of left cerebral hemisphere. More than three-quarters of the left half of the cerebellum were occupied by large masses of the same growth, which apparently had grown separately, and by gradual increase of size

had at length become one mass. The dura mater was adherent over a great part of this side of the cerebellum, and the cerebellar structure that remained was almost diffuent. The other side of the cerebellum was also much softened. Thorax: Old adhesions on both sides. Both lungs full of miliary tubercle; the left throughout, the right in its upper and middle lobes. One or two spots in each of yellow cheesy matter. At both apices were long cicatrices, which on section seemed to be composed of hard fibrous tissue and the remains of old vessels. A few bronchial glands converted into hard cretaceous matter. Abdomen: Abdominal viscera healthy, except that the right supra-renal capsule was three times the size of the left, and was entirely converted into smooth hard lardaceous material.

The next case is almost unique for the slightness of the cerebral symptoms, when taken in connection with the amount of cerebral lesion.

CASE XXIII.—Catherine S., æt. 31; servant; single; pale, lean woman. Has had vertigo, and sensation of weight and pain in back of the head for five weeks. No sickness; no rigors. Pulse now very feeble and hurried. Tongue coated; skin hot. No sickness until eight days after admission, and she coughed first on the ninth day. Became delirious, but was always capable of answering questions reasonably; and the chief symptom was a gradual increasing weakness of pulse. Sank quietly out of life, without coma, on the twenty-second day after admission, having had no convulsion throughout, and no cerebral respiration until the last day of life.

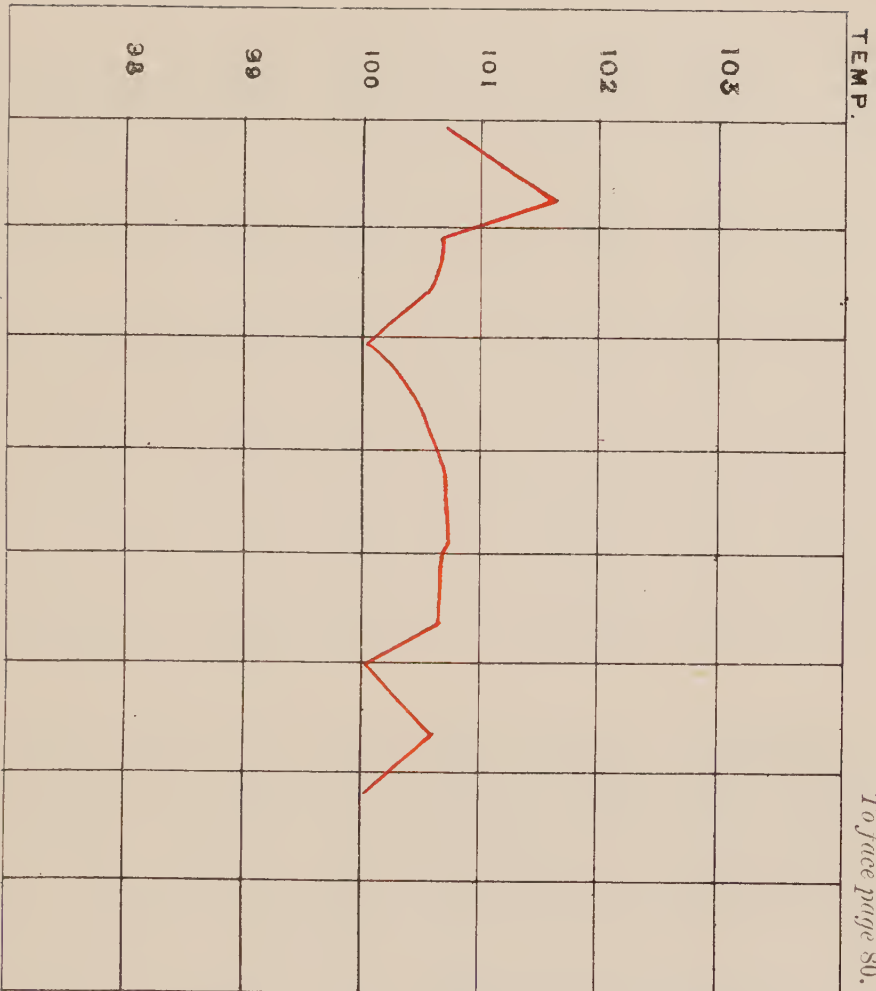
*Post-mortem examination.*—Cranium: Arachnoid and subjacent tissues on convex surface of hemispheres contained much clear fluid, but were otherwise natural. Between the cerebral hemispheres in the longitudinal fissure were a number of small miliary tubercles; and at the lower part of this fissure the opposed hemispheres were adherent to each other by means of a mass of tuberculous matter the size of a nut. A small portion of similar matter was found at the upper part of the cerebellum connected with the arachnoid. The nervous tissue around these tuberculous masses was very softened and ecchymosed. Two similar masses were also found in inner wall of posterior horn of each lateral ventricle. Ventricles full of turbid fluid, and their walls softened. Thorax: Both lungs contained large numbers of tuberculous masses, with vomicae at their apices. Abdomen: Peritoneum had beneath it in many places small miliary tubercles. Liver and both kidneys contained similar ones. No ulcerations of intestines existed.

CASE XXIV.—Mary R., æt. 28; servant. Has been ill a fortnight with headache. Is regular. Is said to have had a disappointment in love. Now answers questions readily; but is very restless, and calls every one around her "darling," and asks to be allowed to get up. Pupils very dilated. Decided convergent strabismus, which has existed only for three days; but it was not known on the first day of her ad-



# CASE XXIV.

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mission whether the strabismus had existed all her life or not. The bladder distended. Feb. 21st. Urine drawn off; s. g. 1021; highly albuminous. Tongue loaded. Bowels not open. Restless night. Strabismus not so marked. 22d. Died.

In this case the thermometer alone showed the existence of meningitis. Without it, the aspect of the case was one of hysteria.

*Post-mortem examination.*—Cranium: Arachnoid on convex surface of the hemispheres healthy. Surface of convolutions rather dry. Slight softening of most of central white matter of brain. A good deal of clear fluid in lateral ventricles. Arachnoid and pia mater at base of brain much thickened, and studded throughout with minute tuberculous granules, that seemed absolutely attached to the vessels of the pia mater. These small masses were especially numerous in the fissure of Sylvius on each side. There was also a patch of thickened membrane the size of sixpence, studded with tubercle, on the central portion of the upper surface of the cerebellum. Veins of brain very full. Thorax: Pleura profusely studded with miliary tubercles on each side of the thorax. Both lungs universally filled with similar appearances, diffused tolerably equally throughout their extent. Bronchial glands enlarged, very full of pigment, and hard, but not cretaceous. Heart healthy. Abdomen: Some miliary tubercle over parts of the peritoneum. Liver healthy. Spleen large, with small tuberculous masses, both in the parenchyma and on the capsule. Right kidney  $2\frac{1}{4}$  oz.; atrophied; congested. Left kidney natural size, congested.

CASE XXV.—Thomas S., æt. 35; stoker; married. December 21st. Seven months ago had intense pain in region of right kidney and ureter, with hæmaturia. The pain has continued ever since. General health good otherwise. Urine very slightly albuminous. He gradually improved in all respects until February 16th, when he had rigors; brown and dry tongue; some headache; felt very ill; no spots. Feb. 18th. Bowels open loosely. Headache. 19th. Was very sick last night. Tongue cleaner and moister. 20th. Bowels open with enema; much scybalous matter came away. Pulse intermittent. 21st. Much headache. 22d. Lies to-day with head drawn backwards; much headache; is conscious; pupils regular; pulse regular; tongue dry; abdomen rather retracted; no spot; bowels confined; urine scanty. 24th. Bowels open; is quite unconscious; no convulsion; pupils dilated; is sensitive to touch. 25th. Died.

*Post-mortem examination.*—Cranium: Veins on the convex surface of the cerebral hemispheres turgid with blood. Arachnoid at base of brain thickened, and covered with yellow lymph, especially over the pons and in the fissure of Sylvius on each side. The lymph was granular in some places. Arachnoid over central portion of upper surface of cerebellum also much thickened. Some fluid in lateral ventricles;



the walls of the ventricles creamy. Corpora striata very soft; cerebellum very soft; no masses of tubercle in brain. Thorax: Both lungs full of small gray tubercle. No softening. A portion of lower lobe of right lung in a state of red hepatisation. Bronchial glands enlarged. Abdomen: Liver large. Spleen large, and very soft. A small abscess in right kidney. Right ureter healthy. Mesenteric glands healthy.

CASE XXVI.—Mary R., æt. 23; single; admitted into the Infirmary after a week's illness, with acute headache, some photophobia and tinnitus aurium. The attack began with vomiting. Urine albuminous. She lived seven days, with slight strabismus on the fifth day, and gradually increasing coma. No convulsion. No irregularity of pulse. With the ophthalmoscope the papillæ of the retina were rather dull-white on the 3d day, with large vessels radiating from them. On the fifth day, and still more on the sixth, the colour of the papillæ was darker, and the vessels much more numerous and larger than in health.

*Post-mortem examination.*—The whole of the arachnoid at the base of the brain, and especially in the fissures of Sylvius, was thickened and granular. Much clear fluid in lateral ventricles, with some softening of their walls. Both lungs full of miliary tubercle. Kidneys granular.

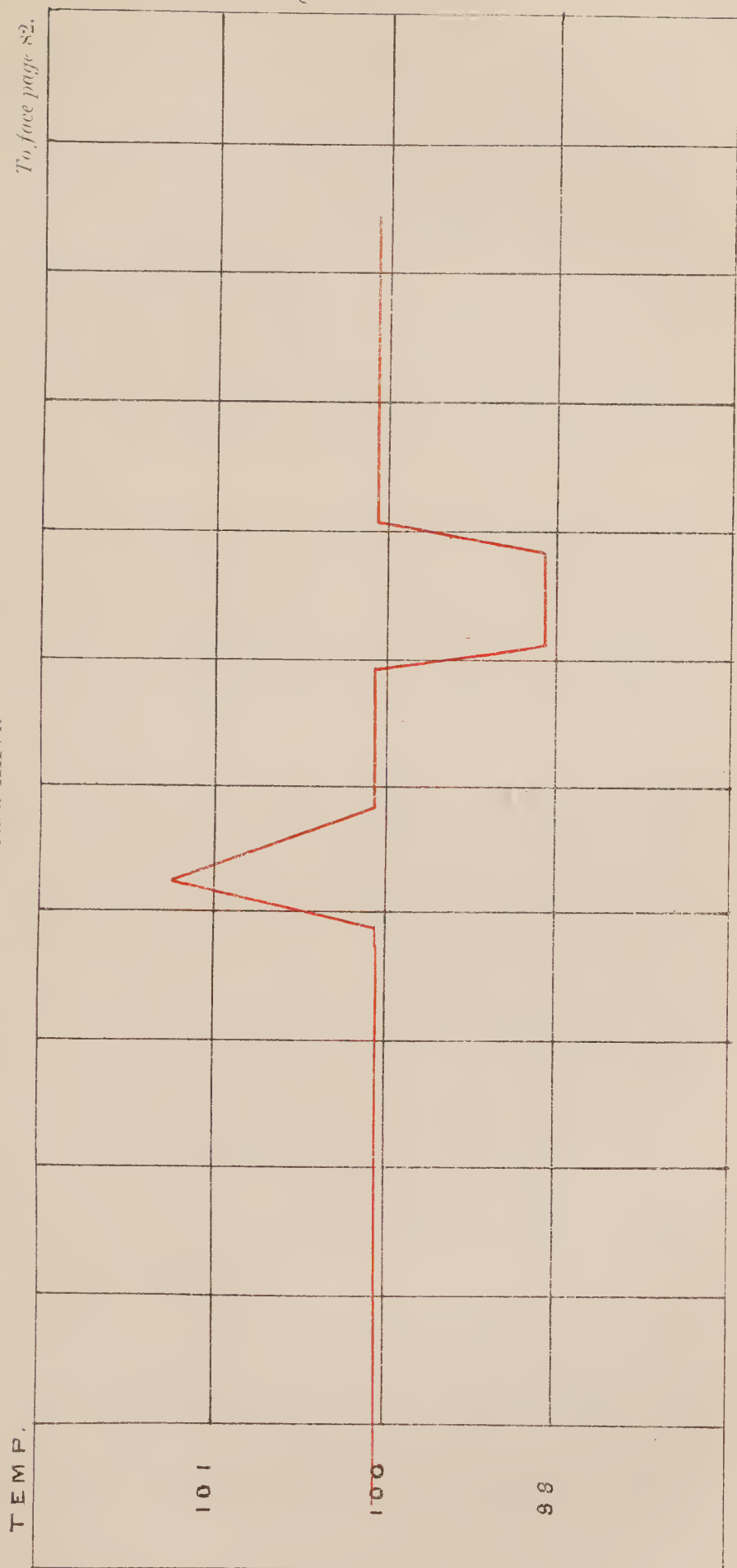
All the retinal lesions, in cases of this sort, are due to obstructions of the venous circulations; the blood being unable to pass freely from the ophthalmic veins into the cavernous sinus. These lesions are congestion and œdema round the papillæ, varicose dilatations and excessive torsion of the veins of the retina, stagnation of blood and thromboses in the veins of the retina, hæmorrhages, and in more chronic cases various exudations, which seem to be old hæmorrhages with the red colour partially absorbed.

One point that must strike us in looking at a series of cases of this nature is, that some portion of brain or cerebellum almost always suffers in the course of the meningitis. Out of these ten cases, nine showed more or less disorganisation of brain or cerebellum, or both. Case xxii. is peculiar, as showing almost total disorganisation of the cerebellum, which had been going on for some time; whilst the patient, even on the day of his death, was able to walk in the garden, and manifested no want of co-ordinating power.

A second point is the occurrence of delirium. This was found under two conditions: screaming and almost maniacal delirium; and a quiet wandering delirium, from

# CASE XXVI.

To face page 82.







which the patient could in most cases be roused to answer a question. The former condition existed in cases xvii. xviii. xx. and xxi., in only one of which (case xviii.) was the arachnoïd milky on the upper surface of the hemispheres; whilst in the other three cases of this group the arachnoïd was healthy at the upper surface of the brain, and only inflamed at the base.

In cases xvi. xix. and xxiii. the delirium was of the low muttering kind; and whilst in case xxiii. there was a good deal of fluid under the arachnoïd at the upper surface of the brain, in the other two cases the pathological appearances of inflammation were confined to the base of the brain.

We may gather, therefore, from these facts, that the delirium cannot be connected with the position of the inflammation of the meninges. I presume that delirium is not a symptom of meningitis *per se*, but only an expression of the almost universal fact, that arachnitis is generally accompanied by inflammation of some portion of the cerebral tissue itself.

This view is borne out by the results of a post-mortem examination which my friend Mr. Parker of Bristol kindly invited me to see last August. The patient, a young man, had died of an attack of hæmorrhage from rupture of the right middle meningeal artery; but the dura mater, all over the convex surface of the hemispheres, was somewhat adherent to the subjacent arachnoïd, whilst the arachnoïd was thickened and yellow all over. This patient had been under Mr. Parker's care a year before, with great pain all over the upper part of the head, without any delirium, and had been treated with entire success with iodide of potassium. In this case, therefore, arachnitis had existed without any lesion of the cerebral matter itself, and without delirium.

Another point in the history of these cases is the form of the tuberculous growth itself. The miliary form on the meninges is often accompanied by yellow masses in the brain and cerebellum, and the two varieties differ only in the larger amount of oil-globules found in the latter. The yellow masses in the brain have so distinctive a cha-

racter, that it is impossible to mistake them for anything else, as observers say may be done in the lungs. But, farther than this, miliary tubercle in the brain is also accompanied, not only by miliary tubercle in the lungs, but very often by marked changes in the bronchial glands. Thus, in six cases out of eleven mentioned above, the bronchial glands were seriously affected, and in most of these cases were transformed into cheesy masses.

The most popular view of the present day is, that tubercle and scrofula are two conditions totally distinct; that the former is a heterologous growth, acute, febrile, irremediable; that the latter shows itself in hypertrophy of normally preëxisting parts, is chronic, non-febrile, and to some extent remediable.

Dr. Southey (from whose lectures at the College of Physicians I take these expressions) reproduces Virchow's views as to the formation of the scrofulous gland, by saying: "The peculiarity of the scrofulous gland-cells is their perishability. The tumour is formed by the increase in the quantity of suchlike cell-elements, enlargement of capsular vessels, and hyperplasia of connective tissue about the follicles or sepiments of the cortical portion of the gland. The supply of blood is thus less liberal, the gland becomes dry and thick, &c., from which state it is quickly transformed into a yellow, opaque, defunct, cheesy mass."

Now I do not wish to assert that the tuberculous and scrofulous diatheses do not differ in certain respects; and it is probable that our predecessors and we ourselves were not wholly right in speaking of them formerly as identical conditions. But it is strange, if they differ so much, that they should be so frequently found in the body together. As I said just now, the bronchial glands were found in what might be termed a scrofulous condition in six out of these eleven cases of tuberculous meningitis; and I believe in cases other than meningeal, when the miliary tubercle affects the lungs solely or mainly, the proportion in which the bronchial glands are affected will be higher still.

To attempt to throw any doubt upon the primary

differences of the two diatheses, especially when these differences are supported by the authority of Dr. Jenner, will seem to be presumptuous in the highest degree; but I would go no farther than clinical observation and pathological results appear to warrant; and when we find a large number of tuberculous patients giving a history of swollen and suppurating cervical glands in early youth, and a still larger number showing after death the so-called scrofulous condition of bronchial glands, with appearances in the brain or lungs that are universally recognised as tuberculous, it does seem at least open to question whether tubercle and scrofula are invariably divided by a rigid line of demarcation. Dr. Southey's assertion, that tubercle is always acute and irremediable, is also opposed to daily experience.

There seems to be no essential reason why these cases of acute tuberculous meningitis should be always fatal. The records of a large number of autopsies gave to Rilliet and Barthez the following results, which can be verified by most hospital physicians:

1. Tubercle may exist on the meninges without any inflammation being present.

2. Inflammation of the meninges may exist in a tuberculous patient without the occurrence of any meningeal tubercle.

3. Meningeal tubercle is often accompanied by injection or infiltration only.

4. It is most usual to find traces of true inflammation round the tubercle.

5. It is not, however, unusual to find this inflammation some way off from the tubercle.

6. Where the inflammation is in the immediate neighbourhood of the foreign body, we are just as likely to find an accurate relation between the number of tubercles and the intensity of the inflammation as we are to find no relation whatever.

Considering, too, the tolerable frequency with which, at post-mortem examinations, we find various growths on the meninges and in the brain, tuberculous and others, that seem to have existed for a considerable period with-



out inducing any symptoms leading to death, it is against experience to believe that the growth of tubercle in the brain or on the meninges has led to the fatal result, or, indeed, has had much to do in the causation of the meningeal inflammation. Indeed, it is probable that the growth of miliary tubercle in connection with the meninges is often so rapid as not to have occurred anterior to the brief period during which the symptoms of meningitis have showed themselves. There is, therefore, some difficulty in understanding why tuberculous meningitis should be so much more fatal than the simple form. The reasons for it are twofold: first, that we have to battle, not only with an inflammatory disease, but with one implanted in a blood-poisoned system; and secondly, that the very first symptoms are often so slight, that valuable time may be lost before the mischief is recognised. The latter point resolves itself, therefore, into a question of diagnosis.

Our means of diagnosis at the very commencement are not many; but pain in some part of the head existed very early in all my cases, and intolerance of light and sound is often an early symptom. Vomiting, though frequent in children, may be absent even in them, and is absent still more frequently in adults.

It is not improbable that by the time delirium, convulsions, or paralysis of any kind are induced, the disease has in most cases passed beyond the power of remedies.

The difficulties in the way of accurate diagnosis are farther increased by the fact that the meningeal lesion is often only one of several morbid conditions. The lungs, the peritoneum, or the abdominal viscera may be the seats of a similar disease coincidently with the meninges.

The diagnosis between simple and tuberculous meningitis must generally depend upon the previous history and constitution, and the evidence of tubercle in the lungs. The intolerance of light and sound is said to be greater, and the delirium of a more maniacal character, in the former; but these points are not sufficiently universal to be useful. Except, however, after external injury, or disease of the ear, or in connection with rheumatism or syphilis, non-tuberculous meningitis is a rare affection.

No confusion is likely between acute tuberculous meningitis and the continued fevers, except at the outset of the disease, and here the thermometer affords some help.

In meningitis, the thermometer seldom rises above  $102^{\circ}$ , and in two of my cases this temperature was not reached till the tenth day, the evening temperature before this date only amounting to  $100^{\circ}$ . The pulse also is generally accelerated, but is often irregular. Now it may be said decisively, that typhoid does not exist if in the second half of the first week the temperature does not rise to  $103\frac{3}{5}^{\circ}$  or  $104^{\circ}$ ; and in the first half of the first week the temperature increases day by day, with a pulse that may be quite low. As the disease progresses, the differences in respect to temperature are more marked.

In typhus there is a direct ratio between the rapidity of the circulation and the heat of the body, both rising together until the fever reaches its climax. The expression of countenance and the eruption will, of course, settle the matter early.

“Gastric remittent fever,” says Dr. Russell Reynolds, “has greater resemblance to tuberculous meningitis of the child than to any other acute febrile affection involving the nervous centres.” But some time before Dr. Reynolds wrote thus, M. Rilliet, and Dr. West after him, had recognised the remittent fever of children to be identical with typhoid; and since the date of their publications thermometric observations have confirmed their opinions.

The thermometer also would separate tuberculous meningitis from mania and delirium tremens, even if the illusions of the one, with the tolerance of light and sound, and the special delirium of the other afforded any room for doubt.

In connection with this question of diagnosis by aid of the thermometer, it will be well to remember that the temperature in the cerebro-spinal meningitis, occasionally met with epidemically, seems to be higher than what is reached in tuberculous meningitis. The observations, however, recorded at present are not perfectly in accordance with each other. Thus, Sanderson found the temperature elevated at all stages of the disease, seldom

below  $100^{\circ}$ . The highest point was just at or immediately after the close of the symptoms of invasion— $102^{\circ}$  to  $104^{\circ}$ , and higher in children.

Niemeyer, on the contrary, found very slight rise of temperature in the first two days, and only a little while before death did it rise to  $104^{\circ}$  or more.

Wunderlich says, "In some cases the fever lasts but a short time, but reaches considerable heights; whilst the pulse is at or below the normal frequency, and only becomes quicker when the temperature has become normal."

In summing-up the subject of acute tubercle, I would call attention to the following considerations:

1. Acute tubercle is the same disease as chronic phthisis, differing from it only in degree of intensity.

The connecting-links are twofold:

i. That all lesions of the one disease are found in the other, and vary simply in those points which depend on the rapidity of their production, as, for instance, the absence of a false membrane lining the cavities in acute phthisis.

ii. That in chronic phthisis there are often periods of febrile exacerbation which in every respect simulate acute phthisis, except that the latter is less amenable to treatment.

2. Acute tubercle is a blood-disease, and often kills by the blood being unfit for vital processes before any lesion sufficient to cause death has been formed in any vital organ. In this particular it is closely allied to the exanthemata.

3. Its connection with, or rather its similarity to, typhoid fever may also be seen in what we may call nature's efforts at cure. These efforts may be seen especially in the intestinal canal. Although the material existing in the intestinal glands before ulceration differs in acute phthisis, to the naked eye, from that of typhoid fever, there is a very close similarity between the two appearances under the microscope; and the process of elimination in this situation is identical in the two diseases. Dr. Harley, in *Histological Demonstrations*, says:



“Typhous matter deposited during the ulcerative process in the small intestines is of the nature of tubercle, consisting of minute granules with ill-defined nuclei, without any indication of cell-development.”

In acute phthisis it is not unusual to see the glands of the intestine tumefied, and apparently just bursting with some soft white tubercle. The ulcers, when formed, are closely similar to those of typhoid fever, although sometimes differing slightly in shape; and the cicatrix is also of the same nature.

In acute phthisis, the bronchial glands, before they become visibly tuberculous to the naked eye, are swollen and dark as in typhoid fever, and contain pigment and a large amount of degenerate cells which cannot be distinguished from the ill-developed cells of tubercle. The same may be said of the mesenteric glands, except that they are seldom pigmental.

At a later stage, both these sets of glands become destroyed by the growth of tubercle; and if the patient lives, they are converted into cheesy material by the deposits of various salts and of cholestearine.

The glands at the back of the pharynx are also constantly enlarged in acute phthisis. In fact, a very large portion of the glandular system seems to be at work with a view of either depurating the blood from the morbid elements of which tubercle is formed, or of rendering these elements harmless; and one of the reasons for the greater fatality of acute tubercle over typhoid is, that the glands are destroyed by the process in the former case, and not necessarily in the latter.

EDWARD LONG FOX, M.D.



## VII. CONTRIBUTIONS TO THE SURGERY OF THE HEAD.

### SEBACEOUS TUMOURS OF THE CRANIAL REGION.


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CYSTS containing sebaceous matter are by far the most common of all the various tumours of the cranial region. Such cysts present, in this region, many peculiarities; and it is to these that I intend more particularly to call attention.

Among these cysts are some the inner surface of which is cutaneous, presenting all the characters of the most perfectly-organised skin, with hairs, and even their minute sebaceous glands. Such are the “*Kystes dermoïdes sous-cutanés*” of M. Lebert; the cutaneous proliferous cysts of Mr. Paget.

As far as the cranial region is concerned, these cysts are, with few exceptions, found in the neighbourhood of the orbit; and even here it is curious to observe how frequently they are situated at one particular spot—the outer part of the brow, close to the external angular process of the frontal bone. Of this the records of surgery afford ample proof; but why these tumours should be thus all but confined to this one spot has not yet been clearly proved, notwithstanding the various explanations which have been given on this subject.

Although remarkably firm when handled, these tumours are not so when laid open. The cyst itself—fibro-cutaneous—is seldom stout; its contents are soft and pultaceous, the well-known sebaceous matter oftentimes mixed with more or less hair.

 The hardness of these tumours is dependent, then, not upon the nature of the cyst or its contents, but upon its being cram-full—a tightly-filled bag. The history of these



tumours tells that they were discovered either at the time of birth or in early infancy; and even here they may have been congenital, but not discovered. Generally speaking, however, attention is soon called to them by their growth, and their diagnosis is, for the most part, very easy. It may be taken for granted, that a small, hard, movable tumour on the outer side of the brow of a young child is one of these sebaceous cysts.

It commonly happens that these tumours are deeply seated. In operating, I have frequently found them under the muscle of the brow; and one great peculiarity is, their frequent connection with the periosteum, to which they are firmly attached. They have been found in the substance of the temporal muscle, and deeper, under the muscle. Some few years back, one of these cysts, of the size of the bowl of a common spoon, was removed by Mr. Busk from under the temporal muscle. It was filled with sebaceous materials, mixed with a quantity of red hair, the patient's hair being black.

Most carefully should the application of anything of an irritating nature to such-like tumours be avoided. No external application will or can be of the slightest use; it will, on the contrary, do harm; and yet I scarcely recollect ever seeing a case of this kind in which some such application, and especially iodine, had not been already tried.

Neither will simply incising the cyst, turning out its contents, and trusting to suppuration, effect a cure; at least, certainly not in the majority of cases.

A young man, 21 years of age, was admitted into Dieffenbach's clinique in 1846, with a large sebaceous tumour just above the left brow. It had been first observed when he was six months old, as a small pea-like body. It grew but slowly; at the age of 19 it was as large as a plum. A surgeon was applied to, who laid the tumour open in its whole length, turned out the contents, and dressed in the cyst, keeping up suppuration for five or six weeks, after which the wound healed. Within a short time, however, the tumour reappeared, increased rapidly, and when seen by Dieffenbach was of the size of a small apple, covering the whole eye. The tumour was dissected out, cyst and all. The interior of the cyst, notwithstanding the lengthened suppuration, presented all the characters of the outer skin; it was covered with hairs, the greater part of which had each their two little sebaceous glands.

The removal of these small cysts is sometimes difficult, and especially in young children, in whom it most frequently happens that the operation has to be performed. The tumour appears to be quite superficial; the operation is begun, and then it is found that the tumour is deeply imbedded. The cyst is a thin one; it bursts; it cannot be pulled out like a common sebaceous tumour of the scalp; then comes tedious dissection. This I have seen happen several times; and it was only with the greatest care that the whole of the cyst was ultimately got out.

The whole cyst must be removed; if a bit is left, the wound may not heal; a sinus forms, which, becoming troublesome, leads to its being laid open, and at the bottom of the sinus is found a bit of tegumentary membrane, part of the original cyst.

If the operation is performed at an early period of life, the cyst may be more or less firmly attached to the periosteum only; but if left to itself, such a tumour, increasing in bulk in after years, leads to absorption of the bone, and it may be to perforation of the skull.

A few years back I was consulted about a tumour of the size of a large walnut, situated over the outer part of the right brow, and extending into the temporal region. This tumour, globular in shape, and of a softish consistence, was firmly attached by a large base. Careful examination showed that the ridge of the orbit was partially absorbed, and, deeply, a bit of the tumour could be felt slightly projecting into this cavity. The history was, that the tumour was first noticed at about the age of two years; it was then of the size of a small marble, and quite movable; it had remained stationary for some years, without any apparent inconvenience; but latterly it had taken to growing rapidly, and the patient, then aged twenty years, was suffering from severe headaches. Mr. Cæsar Hawkins, who saw the case in consultation with me, concurred in the opinion that the tumour was a sebaceous cyst, which ought to be removed at once. When the operation was performed, the tumour was found to be firmly attached to the periosteum only in the temporal region, but over the orbit it dipped deep into the bone;

the upper and outer part of the orbit was absorbed; and above this, the outer table and diploë of the bone were gone, leaving merely a thin inner plate to defend the brain. Here the bone was quite scabrous, and the depression large enough and deep enough easily to lodge the top of the thumb. The tumour was removed whole: it proved to be a thin-walled cyst, filled with a thin white sebaceous matter, mixed with a kind of oily fluid; there was no hair in it. The case ultimately did well, but it was a long while before the wound was filled up. I lately heard of this lady, and she has been quite well ever since the operation.

In this case, the evils which may arise from one of the sebaceous tumours so commonly observed about the outer part of the brow of young children are clearly marked. At first this small tumour was perfectly movable; but left to take its own course, it became attached to the bone, which it gradually absorbed; and had it been allowed to remain where it was much longer, there is no doubt that the skull itself would have been perforated.

In dealing, then, with these little sebaceous tumours, especially should it be recollected that, even at a very early period of their formation, they are commonly connected more or less closely with the periosteum.

But in the great majority of cases the sebaceous tumours about the cranial region differ widely, in many respects, from the cysts which have just been described.

Within the cyst may be found, it is true, the like materials, epidermal scales in abundance, and fatty matter; but it is impossible to make out anything like a cutaneous lining. If it ever was there, its typical characters have disappeared.

In many cases, indeed, it is difficult even to define the exact boundaries of the cyst itself, so intimately blended are the cyst and some of its contents.

For instance, the small, hard, marble-like sebaceous tumour commonly met with about the scalp. So intimately blended are the cyst and the closely-packed outer layers of the contents in such a tumour, that it is difficult to say where one begins and the other ends. Indeed, so



close is their union, that the whole thickness, whatever that may be, is usually described as the wall of the cyst. The now common expression of "thick-walled cyst" is, I believe, an erroneous one. That which is supposed to represent the wall of a thick cyst is, properly speaking, not the cyst itself, but simply a part of its contents. A careful examination proves that the whole appearance is dependent upon the disposition of the contents of the cyst; the inner layers of the contents are soft and pap-like, but the outer ones, made up of flattened epithelial scales, condensed and closely packed in layers, look like a tough fibrous tissue, which, being more or less intimately connected with the cyst, has been described as part of it.

Such a tumour, in its earlier stages, may be all but solid; it is made up of flattened epithelial cells, condensed, matted together, and disposed in concentric layers: the whole presents, on a cut surface, a hard, tough, and horn-like appearance. But as the tumour progresses, the more central parts break down, liquefy, and thus is formed the softer, pultaceous-looking sebaceous material; and if the softer parts be cleared away, there remains an irregular cavity, with a jagged surface, enclosed by the firmer, fibrous-like tissue not yet broken down. In all this it can be traced how it happened that these tumours were described as thick-walled cysts, specimens of which are to be found in our various museums.

It sometimes happens that a piece of the horn-like material, which I have just mentioned, gets detached, and lies loose in the soft substance. This I have several times seen in some of the larger sebaceous tumours of the scalp, and in the Museum of St. George's Hospital are some specimens illustrating this point.

The piece of horn-like material thus detached may be of large size; so large indeed as to be clearly felt during life. In a woman 58 years old, the hairy scalp had put on the appearance of the convolutions of the brain, from the projection of a prodigious number of sebaceous tumours. M. Denonvilliers, having decided upon removing the two larger tumours, observed that one of them was

very hard on one side, and soft on the other. Slight pressure on the softer side led to the displacement of a foreign body, pyramidal in shape and elastic, which M. Denonvilliers thought might perhaps be some hard horny material lying loose in the cavity of the sebaceous tumour; and so it proved to be. The cyst contained a quantity of pultaceous fluid, and a hard horn-like substance, pyramidal in shape, with stalactiform ramifications.

Again, instead of concentric layers lining the cyst, the horn-like material may be in small masses irregularly disposed, and circumscribing little cavities containing the sebaceous material. In a specimen belonging to the collection of Mr. Cæsar Hawkins, now in the Museum of St. George's Hospital, there is a thin cyst, of the size of a mandarin orange, divided into small irregular cavities, and in these is lodged the sebaceous matter. A section of the tumour presents a multilocular appearance; the boundaries of the cells being formed by short thick pieces of horny substance, of a darkish colour, and contrasting by their transparency with the dull opaque sebaceous matter.

In less common cases the contents of the cyst are altogether pultaceous; there is no horn-like material; and the cyst itself is thin and fibro-cellular. Or that which was pultaceous may become liquid, a thin fluid with epidermal scales floating in it. Or even these, in rare cases, may have disappeared, and the cyst may be filled with a more or less transparent fluid. If irritated by any cause, or roughly used, such a cyst may have mixed with its fluid more or less blood.

In December 1855, Mr. Birkett had under his care, in Guy's Hospital, a woman in whose scalp existed tumours presenting most of the varied appearances which have just been described. The smallest of these tumours consisted of a leathery, almost cartilaginous tissue, concentrically disposed, and although containing some sebaceous matter, there was no cavity in the centre. In another of these tumours, also a small one, the tissue was likewise hard and dense, except in the centre, where there was a small cavity occupied by dry greasy materials (epidermis scales and fat). A larger one was a thin-walled cyst, lined with epi-

dermal scales, which contained sebaceous matter of soft consistence. Then there was another thin-walled cyst, in which the materials were very soft, and mixed with much yellowish fluid. The largest and softest of all these scalp-tumours had also a very thin-walled cyst containing scarcely anything more than fluid of a dark colour resembling coffee-grounds, and adhering to the lining of the cyst was a soft solid, like the fibrine of the blood.

A few years back, and these tumours would have been viewed very differently; their origin would certainly have been ascribed to anything rather than to a sebaceous tumour. M. Velpeau attributed small tumours of this kind, the hard ones, to nothing but a fibrinous clot, the result of a contusion, the central parts of which had softened down; and the largest of Mr. Birkett's tumours would doubtless have been held as confirming such a view, a simple collection of blood which had become encysted.

In some cases, crystals of cholestearine are mixed up with the sebaceous materials of an encysted tumour of the scalp, sometimes in small, sometimes in large quantities. Such crystals abundantly strewn amidst the epidermal scales render an encysted tumour not only quite solid, but give to it, on a section, a peculiar bright, glistening, mother-of-pearl appearance. This has been described by Müller as the cholesteatomatous tumour; but it is difficult to see why such a tumour should not still be classed with the sebaceous tumours, from which it differs only in the accidental circumstance of an abundance of cholestearine. I certainly agree with Mr. Paget in thinking that Müller's cholesteatomatous tumours do not differ, in anything essential, from sebaceous tumours. In both there are layers of epidermal scales, to which are added in cholesteatoma abundant crystals of cholestearine.

In very rare cases too the contents of a sebaceous cyst may become altogether cretaceous. The tumour is then perfectly solid, and remarkably hard, like a bullet. I have sometimes found the white putty-like pulp in such a cyst of the scalp; but I have met with no case in which the entire mass of such a tumour had become calcified.

Sebaceous tumours of the scalp are for the most part



below the dermis, not in its deeper layers, as in most other parts of the body, but under the dermis, in the cellular adipose tissue between it and the occipito-frontalis muscle.

Thus situated, a sebaceous tumour of this region is remarkable for its loose connections with the surrounding parts. When small, it rolls freely under the skin, and so slight are its connections, that it may with the greatest ease be turned out of its bed, after division of the integuments. And thus it may remain for years, with but little detriment, save its unsightliness, either to the skin or to the parts below. By its growth, however, a sebaceous tumour distends the skin, which gradually becomes thinner, and the part gets more or less bald. On the other hand, if the increase of the tumour is towards the deeper parts, it may interfere with the nutrition of the bone underneath, the surface of which presents a corresponding pit. In some cases the destruction of the bone proceeds still further; the outer table, the diploë, and the inner table all gradually disappear, until at last the skull is perforated. To this point it is necessary now more particularly to direct attention.

In some cases the pit in the bone resembles, but on a larger scale, the small depressions so commonly observed on the inside of the skull in connection with the so-called Pacchionian glands. The greater part of the depression results from the absorption of the diploë and the sinking down of the thinned outer table, and this may have gone so far as to render the skull diaphanous at this spot.

This partial absorption of the bones of the skull, in connection with sebaceous tumours, is not at all uncommon. I have felt the bone thus slightly depressed after the removal of a sebaceous tumour.

Some time back, the late Dr. Deville showed me a frontal bone the central part of which, not far from the sagittal suture, had been absorbed by a sebaceous tumour. The preparation was found in the dissecting-room.

A child, æt. 3 years, was taken to the Hospital for Sick Children, with a tumour about the size of a small walnut, corresponding to the middle part of the upper border of the frontal bone. There was no

discoloration of the skin, and the anterior fontanelle was quite closed. The tumour had first made its appearance when the child was eight months old ; it was then small, but had gradually increased in size. It was removed by Mr. Athol Johnson, and found to consist of a cyst filled with sebaceous matter placed under the occipito-frontalis muscle. The under surface of the cyst was intimately adherent to the periosteum around ; it was, moreover, sunk deeply in the bone, which presented a cup-like cavity. Perforation of the bone was not actually made out ; nevertheless, as there could have been but a very thin plate of bone left, Mr. Athol Johnson thought it advisable, after emptying the cyst, not to remove the small portion adhering to the centre of the cup-like depression. The child did well. The parts healed with a depressed scar adherent to the bone beneath, and so it remained ; for when I saw the child some time afterwards, there was the depressed scar with the cup-like depression in the bone, which, if not actually perforated in the centre, must have been close upon it.

Another case was also operated upon by Mr. Athol Johnson at the Hospital for Sick Children, in which the bone was all but absorbed.

Mr. Warren removed a sebaceous tumour of the size of an orange from the head of a lady aged 40 years. It had existed since her childhood, had given rise to chronic headache, and threatened to seriously impair her general health. The under part of the tumour was closely adherent to the periosteum ; the cyst was, however, removed whole, and then there appeared a deep excavation in the bone. The wound healed slowly, and the patient recovered a perfect state of health after many years of indisposition.

Some years back I was consulted by a gentleman, aged about 30, for a sebaceous tumour on the vertex. At the same time he showed me another tumour of the same kind, which he said had cured itself ; but on closely examining the part, I found that this tumour, of the size of a cob-nut, was deeply imbedded in the bone. I could distinctly move the cyst in the cavity which it had made for itself in the bone, upon the surface of which it now merely formed a slight projection, which was situated on the right side of the frontal bone, near its eminence.

M. Spring, having carefully examined a good number of sebaceous tumours of the scalp, both on the living and on the dead, has come to the conclusion that the tendency

of all such tumours of a largish size is to excavate the bone upon which they are lying.

In the preceding cases the bone was only partially absorbed; but in the following cases the skull was actually perforated.

A girl, æt. 6 years, of strumous constitution, had been suffering for three years from two hard movable tumours, separated by only a slight interval, on the back of the head, near the right side of the occipital protuberance. The upper tumour was of the size of a pigeon's egg, and the lower of that of a walnut. She also had some enlarged glands at the back of the neck. Some outward application having failed, it was decided to remove these tumours. A longitudinal incision was made upon them, and both tumours shelled out, though not without difficulty, from the tension of the skin and the induration of the cellular tissue. After the operation, it was observed that there was a hole in the occipital bone half an inch in diameter, corresponding to the middle of the larger tumour, through which the dura mater of a natural colour and the pulsation of the brain were plainly seen. The wound was united, a soft compress and bandage applied, fever-diet and saline purgatives. At night there were convulsions, vomiting, restlessness, and constipation. The convulsions recurred occasionally during three days, after which they disappeared, and the parts were all healed within about six weeks, with a depression in the bone corresponding to the hole in the bone, but no pulsation could be felt. The child improved in health after the operation, and the enlarged glands disappeared.

A soldier, æt. 25, of dissipated habits, had a tumour on the head of the size of a pomegranate, which he had observed since his childhood. This lump was very painful to the touch, and around it could be felt a bony rim, but there was no pulsation. Perforation of the skull was suspected, and a consultation was held, at which it was determined to operate. M. Auvert laid the tumour bare by a crucial incision; it was encysted; there was much difficulty in getting the cyst out of the opening in the external table of the bone, which embraced it tightly. The cyst was, however, got away whole; it was a thick-walled sebaceous cyst. The internal table was examined, and believed to be sound. The patient was attacked with erysipelas, and died four days after the operation. The frontal bone was found to have been perforated, the hole in the internal table being very small, not larger than a hemp-seed. The membranes of the brain were inflamed; the dura mater and arachnoid thickened.

M. Picard presented to the Société Anatomique de Paris the skull of a woman, aged 71, who, from three years old, had on the upper and fore part of the head a tumour, the increase of which had been very slow. The tumour, about the size of the fist, was a thick-walled



cyst, containing sebaceous materials mixed with hairs; it covered a large portion of the frontal bone, the corresponding external table of which was flattened and depressed. In the centre of this depression was a hole of the size of a sixpence, with margins bevelled off at the expense of the external table, proving that the bone had been worn away from without inwards. The dura mater beneath was quite healthy. The tumour had never given rise to any symptoms of compression, and the cerebral functions had been perfect throughout. The patient died of softening of the left side of the cerebellum and right side of the pons Varolii.

For the particulars of the following case I am indebted to Mr. Cæsar Hawkins :

A young woman had in different parts of the head several small encysted sebaceous tumours, which had existed for years. One tumour, flatter than the rest, was situated at the fore and upper part, close to the sagittal suture. Six months previously this tumour had inflamed and become very painful; suppuration ensued, the integuments broke, and for four months there had been a continual discharge through a small hole at the top of the swelling. During the whole of this time she was subject to intense headaches, which destroyed her rest, incapacitated her for work, and impaired her health. On laying open the skin, the suppurating cavity was found to contain four small tumours, two of which were adherent at their under surface only, while the others were entirely detached. Under the largest of these tumours a smooth depression existed, of the size of the end of the little finger; and on examining this, the pulsation of the vessels of the brain evidently showed that the bone had been absorbed to that extent, the edges of the bone gradually thinning down towards the opening. The wound healed readily, and the headaches and other symptoms disappeared after the operation.

In November 1842, a young girl, æt. 17, was admitted into the Hôpital Necker, Paris, under the care of Lenoir, with a small sebaceous tumour, of the size of a walnut, in the upper and middle part of the frontal region, a little beyond the roots of the hair. This tumour had first been noticed when the patient was two years old; it was then very small, and its increase had been gradual. Some years previously an incision was made into it, but the cyst was not removed. In cutting into the cyst Lenoir found that it was lodged in a deep cup-like cavity in the frontal bone, to which it was very firmly attached; the whole cyst was, however, got out. Two days afterwards erysipelatous inflammation made its appearance about the scalp, and the patient sank on the tenth day after the operation. The frontal bone is now in the Museum of the Royal College of Surgeons of England.

Another case of perforation of the skull by a sebaceous

tumour is often quoted from Delpech; but I have in vain sought for the case in the various works published by that celebrated surgeon.

It is curious to observe how very frequently the sebaceous tumours which have perforated the skull have been lying at one and the same spot. In four out of the five cases mentioned above, the perforation corresponded to the upper and middle part of the frontal bone, close to the sagittal suture; and in two other cases where the absorption of bone was extensive, the tumour was precisely at the same spot. Were these tumours congenital? Perhaps so. Several of them were known to have existed in early childhood: in Mr. Athol Johnson's case the tumour was noticed at the age of eight months.

To these cases of perforation of the skull by sebaceous tumours must be added those where the tumour was cholesteatomatous, the nature of which, as I have already said, does not differ in anything essential from sebaceous tumours.

A healthy young man, *æt.* 24, an usher in a school, consulted Dr. Esmarch, of Kiel, about a swelling on the left side of the forehead, connected with the bone. Irregularly hemispherical, this swelling measured  $2\frac{1}{2}$  centimètres in height, and its diameter at the base was  $5\frac{1}{2}$  centimètres. The greater part of its surface was soft, with obscure fluctuation; but towards its circumference there was a rim of bony hardness, which blended gradually with the substance of the frontal bone. Traced upwards, this bony rim suddenly ceased with a sharp edge; a longitudinal projection was felt running out of the rim, both above and below, into the swelling; and, by firm pressure, several knotty eminences could be felt below the substance of the tumour. The surface of the swelling was divided into two by a depression in which were lodged the supra-orbital vessels. The superficial coverings were movable over the whole tumour, which was neither painful nor tender. The history was, that a hard, irreducible, and painless swelling had first been noticed at the spot at ten years of age; it remained much in the same state for six years, increasing very gradually—so gradually as not to interfere with his hat. For the last two years it had grown more rapidly, and its surface had become softer. He had been suffering for some time past from a dull pain in the head, and thought that his mental powers were somewhat impaired. The tumour was punctured with an exploring trocar, and a yellowish-white greasy substance followed. Examined under the microscope, this was found to consist, for the most part, of polyhedral, flat, compressed cells, resembling epithelium, and exhibiting nuclei on the addition of potash. Between these

cells lay masses of cholestearine crystals, fat-vesicles, and a yellowish granular mass, which also consisted of fat. The tumour was removed. The superficial parts having been cut through, the fibrous envelope of the tumour was seen to be continuous with the periosteum; this was divided around the bony walls of the swelling, and its contents, a firm pulp, of a pearl-white colour, scooped out, leaving a deep irregular depression in the bone, surrounded by a rim, and divided by bony processes. The bottom of this depression was below the level of the internal table of the rest of the bone, so that the frontal here bulged inwards; in two points, about the size of pins' heads, the bone was absorbed, and the dura mater exposed. The inner surface of the cavity was coated by a layer of bluish-white transparent substance, consisting of polyhedral cells, and obviously only the most recently-formed layers of cholesteatoma. The projection and edges of the bone were then smoothed off, and the cavity stuffed with charpie. On the fifth day the charpie was removed, and most of the wound was found covered with granulations; but where the bone had been scraped there was a membrane like that observed at the operation. Stick-caustic was subsequently applied to this from time to time, and the whole wound was healed in five weeks, leaving a much slighter depression in the middle than might have been expected.

Thus far, only the evils which a sebaceous tumour may possibly give rise to by its mere growth and development have been considered. Such tumours are, in the great majority of cases, productive of little or no inconvenience. For years they may and do remain unchanged; but every now and then, from some slight cause or another, perhaps even from broken health only, the cyst itself or the parts around it inflame, and suppuration sets in; this is followed by ulceration, or the matter is let out; then there may be a respite; but ultimately extensive suppuration takes place, and the bones underneath become more or less affected with caries.

A man, æt. 40, had been troubled for fifteen years with one of these sebaceous tumours, which at times had given rise to pain and feverish attacks. At different periods there had been threatenings of suppuration, but they had always been warded off; at length suppuration did take place, then ulceration, and a quantity of sebaceous matter was squeezed out. After a time the wound healed; in seven or eight months the tumour was larger than ever; it inflamed and suppurated again; but the patient would on no account allow it to be touched. The skin sloughed; the contents of the cyst were evacuated; and then it was discovered that the bones themselves were affected. The case ultimately did well, however, after the carious bone had been removed by J. L. Petit.



Again, a sebaceous tumour inflames and bursts, or the matter is let out; the wound does not heal, it gradually enlarges; the parts around become involved, and, getting thickened and very vascular, give rise to profuse bleedings. The ulceration spreads, and a large, open, foul sore is at length formed.

In Mr. Paget's valuable Lectures on tumours, there is a well-marked case of this kind.

A woman, æt. 80, had numerous cysts on her scalp. They were like common sebaceous cysts, and three of her daughters had cysts like them. Two years and a half before her death, one of these cysts, which had not previously appeared different from the rest, inflamed. It was opened, and sebaceous matter was discharged from it. The opening did not heal, but ulcerated, and a small hard lump remained under the ulcer for a year; when, after an attack of erysipelas of the head, it began to grow, and rather quickly increased to a mass nearly five inches in diameter, which occasionally bled largely.

In such a case the diseased mass looks very like epithelial cancer, for which it has often been mistaken; and many such cases are to be found scattered in different works. But in all these cases the history of the apparently cancerous growth, originating in a sebaceous tumour, at once points to its true nature; and the subsequent progress of the case after destruction or removal of the diseased mass proves that it was not of a cancerous nature.

Aspect of the growth, constitutional symptoms, all may appear to be against the patient, and yet removal of the tumour is followed by complete recovery.

In 1817, a lady, æt. 62, had for many years been suffering from several sebaceous tumours scattered under various parts of the scalp. At length one of them became troublesome; less, however, from its size than from its position at the back of the head. Potassa fusa was applied over it; the integuments and a part only of the cyst were destroyed; suppuration was kept up in the remaining part of the cyst, in order that it might granulate. The remedies, however, gave rise to violent pain, restlessness, and hectic fever, notwithstanding which the treatment was persevered in for upwards of six months. Then came cough, with other chest-symptoms, and general wasting; and when Delpech saw the patient for the first time, he found that the greater part of the cyst was converted into a brown fungus, very painful to the touch, and bleeding very easily. The growth, at first sight, presented all the appearances of a cancerous affection, and the general symptoms were cer-

tainly such as to lead to the suspicion that the constitution was seriously implicated; but, notwithstanding all this, Delpech, with such a history, wisely determined upon removing the diseased mass. It was cut out; the patient recovered, and remained well for years afterwards.

In some of the worst-looking cases of this kind—so bad, indeed, as to deter the surgeon from interfering—a cure has been accidentally effected.

A large, irregular, and foul sore, with hard and raised edges, had been preceded by an inflamed sebaceous tumour; but such was the cancerous aspect of the diseased mass, that it was determined simply to treat the case constitutionally. Hospital gangrene, however, fortunately supervened; complete destruction of all the diseased tissues followed; the ulcer which remained soon healed, and the patient was cured.

But I know of no case so strikingly illustrative of the varied appearances to which a sebaceous tumour may lead as that which was at the Hôpital St. Antoine some years back, under the care of M. Chassaignac. The case, complete in all its details, both as to history and microscopical examination, is certainly one of the most valuable of its kind on record.

Rosalie Robin, æt. 68, was admitted into the Hôpital St. Antoine in July 1850, worn-out from long-continued suffering. The face was waxy, puffy, and slightly œdematous, and so were the hands and the feet. She had lost all appetite, breathed hard, and scarcely slept, such was the pain she suffered. On the top of the head was an enormous tumour, of the size and shape of a turban, the upper surface of which, extensively ulcerated, and of a reddish-gray colour, bled freely when slightly touched. It was made up of several large irregular masses, some of which presented evident fluctuation. It appeared that at the age of twenty-five she for the first time perceived two small tumours on the top of the head, about the size of a filbert, and, from the description, evidently of a sebaceous character. These tumours remained much of the same size up to the age of forty, when she was struck on the head by the branch of a raspberry-bush, a thorn of which ran into one of the sebaceous tumours. This gave exit to some of the sebaceous matter; the wound did not heal, and from time to time she was in the habit of squeezing out some of the contents of the tumour. And thus matters went on for some thirty years, the tumours having by this time grown to the size of a fowl's egg. When sixty years of age, this woman fell from a carriage on to her head, and struck these tumours. This gave rise to extensive bleeding, and in a fortnight afterwards this was followed by sharp lancinating pains in the tumour, which increased

rapidly in size, and became as large as the fist. The small wound, which had been stationary for upwards of twenty years, also rapidly increased in size, and it ulcerated, and daily gave rise to bleeding of an alarming character. Suppuration set in, the discharge being copious and most offensive. Such being the aspect of affairs, she was advised by a surgeon whom she consulted to have nothing done to the tumours. And thus matters went on for about five years more, the patient getting gradually weaker from the repeated bleedings and the constant pain. The tumour then took to growing more rapidly, until it became of an enormous size; it ulcerated extensively, but more in surface than in depth; and a year afterwards two other lumps made their appearance in the occipital region; they grew rapidly, soon became of the size of the fist, and at last joined-on to the large tumours already on the top of the head. After the admission of the patient into the hospital, she was twice attacked with extensive bleeding; the ulceration spread deeper and deeper, so as to involve the bones; which also gave way, and left the dura mater perfectly bare, the pulsation of the brain being very evident. She died worn out, and on the 26th of July the body was examined. All the viscera were perfectly healthy. No traces of disease existed in any of the glands belonging to the cranial region.

In the *Bulletins de la Société de Chirurgie*, vol. i. will be found a short account of this case by M. Chassaignac, under the title of "Cancroïde du crâne." Subsequently this same case was detailed at length by M. Rouget, the Interne, to the Société de Biologie, under the title of "Tumeur épithéliale du cuir chevelu présentant une structure toute spéciale" (*Bull. de la Soc. de Biologie*, vol. ii.). Thus far, then, the true nature of the case had not been discovered. The preparation was then shown to the Société Anatomique by M. Lebert, and the following is his account of the morbid appearances. All the non-ulcerated tumours were cysts filled with sebaceous matter, and in several of these cysts traces of obliterated excretory ducts still remained. All, or at least nearly all, these tumours were imbedded in little fossæ, varying in depth, hollowed out in the bones of the calvaria. In these little fossæ the external table was sunken, and in contact with the internal table; the diploë was gone, and the bone was here quite diaphanous. Corresponding to the large ulcerated surface of the tumour was an opening in the calvaria, seven centimètres in length and five in width. Around the margins of the opening were several lamellæ of necrosed bone.



I have been thus particular in mentioning this case, as I find that it has been quoted by Dr. Victor Bruns as two different cases, M. Chassaignac's and M. Rouget's (*Handbuch der prakt. Chirurg.*).

What appears to be a large sebaceous tumour is sometimes found, on dissection, to be made up of several little sebaceous cysts closely bound together. In dissecting a tumour taken from the hairy scalp, Cruveilhier found that it consisted of seven or eight small cysts placed side by side, but perfectly independent of each other. The hardened sebaceous materials were squeezed out, and the little cysts closely packed together looked like a honeycomb.

And this leads to the sebaceous follicular tumours of the scalp described by Mr. Cock and Mr. Birkett, to which this case appears to be closely allied in some respects.

Such tumours are not unfrequently met with about the scalp. Globular in shape, the sebaceous follicular tumour begins as a small swelling, connected only with the skin at first. As it progresses, however, it dips down, and gradually attaches itself to the deeper parts, and even to the periosteum. The skin covering the tumour, remarkable for its thinness and transparency, soon ulcerates, forming several minute openings, through which escape sebaceous material and a watery fluid. But scantily supplied with blood-vessels, and these small ones, the central parts of such a tumour are very prone to die. A foul ulcer follows, the disease spreads, the parts around become thickened, hard, and irregular, and in this stage the diseased mass is most frequently mistaken for a cancerous ulceration. Microscopically examined by Mr. Birkett, such tumours were found to consist of a very large proportion of epidermal scales, a quantity of fatty oily materials, probably allied to sebaceous matter, and an abundant supply of cholestearine, either dispersed in the greasy matter, or collected in small masses; and in the softer parts were inflammatory and pus-cells. In none of them was there anything approaching to a cancer-cell.

Mr. Cock mentions some well-marked instances of this disease about the scalp. In one there was a deep foul ulcer, four or five inches in diameter, which had destroyed

the scalp, and was adherent to the periosteum. It had originated in a small tumour, and had of late years been always considered malignant, so that all idea of operative interference had been given up. Mr. Cock cut away the whole mass down to the bone, which was laid bare. A healthy scar formed; and a year afterwards the woman was known to be perfectly well, without a trace of anything like a return of the disease.

Such a case is typical of the sebaceous follicular tumour in its various stages.

About the brow and temple it but very seldom happens that there is more than one sebaceous tumour, whereas in the hairy scalp most frequently several such tumours exist at the same time. There may be only a few, but it often happens that the whole scalp is more or less studded with them. Philippe Boyer mentions having counted as many as twenty-three in one lady.

And not only do these sebaceous tumours of the hairy scalp thus exist in numbers in the same person, but they also frequently occur in several members of the same family, and that for generations together. The brother, sister, mother, and grandfather of the lady with twenty-three sebaceous tumours were each of them afflicted with a large number of these tumours. In speaking of the frequent hereditary origin of these tumours, Mr. Paget states that they are certainly more commonly hereditary than any forms of cancer. A strange point about the hereditariness of these tumours is, that they are sometimes altogether confined to the female line. Some years back, I operated upon a lady whose scalp was thickly studded with these tumours. Her mother and aunts were similarly afflicted, and so too had her grandmother been. But none of the male part of the family had had any. A similar case is also mentioned by Girard in his *Lupulogie*. In one family all the females, for three or four successive generations, had had these tumours, but all the males had escaped.

The sebaceous tumours about the brow seldom attain to any very large size, even when they have existed for years. The largest I have seen was of the size of a large

walnut; it had existed for upwards of twenty years. M. Lebert mentions having seen one in Dieffenbach's clinique of the size of a small apple; it too had existed for upwards of twenty years. About the hairy scalp, however, sebaceous tumours sometimes become of an enormous size. In the Museum of St. Thomas's Hospital is a cast of a man's head, on whose crown a large tumour of this kind was so prominent that it prevented the man's hat from reaching his head. The tumour was subsequently removed by Sir A. Cooper. A similar specimen, removed by Mr. Liston, and as large as a cricket-ball, exists in the College Museum. And in St. George's Hospital Museum is an enormous sebaceous tumour, which I removed some years ago from the back of the head of a middle-aged woman. It hung pendulous on to the nape of the neck, and to hide it she had for years worn bonnets of a very large size. The cyst, lined by a thin layer of horny material, was filled with soft sebaceous matter, in the midst of which were also some layers of horny substance. But of these sebaceous tumours connected with the head, the largest I know of is one mentioned by Saltzmann, weighing five pounds, which he removed from his father's head.

These large tumours generally exist at the back of the head, are very soft, and often grow rapidly, the greater part of their contents being more or less fluid. The size and softness of these tumours depend, no doubt, upon their locality, exposed as they are to pressure, rubbing, and such-like sources of irritation. As to their mode of origin, such tumours are still thought by many eminent pathologists to arise exclusively from the obliteration or blocking-up of the excretory duct of a sebaceous follicle. But many pathologists of the present day, and equally eminent, dissent from an opinion so exclusive. The now generally received opinion is that these tumours may arise in two different ways. Sometimes it is a sebaceous gland distended by its retained secretion which forms the tumour; more frequently, however, such a tumour is altogether of new formation.

M. Lebert concludes that the sebaceous cysts around



the orbit, cysts containing skin and hair, are of new formation, and that the sebaceous tumours of the scalp may owe their origin altogether to an abnormal development of the sebaceous glands. In a case which he dissected with M. Follin he found a number of such tumours connected with the deeper parts of the dermis, some of which were of the size of pins' heads, and others as large as filberts. In the smaller tumours there still remained the distinct lobulated outline of a sebaceous gland, and in one and all there was a pointed and elongated extremity corresponding to the excretory duct.

But in most cases it would indeed be impossible thus clearly to trace out the development, in its various stages, of a sebaceous tumour of the scalp, and most clearly has it been pointed out by Mr. South how difficult it is to refer these tumours to over-grown sebaceous glands.

In pointing out the localities in which newly-formed sebaceous tumours have been found, Mr. Paget refers especially to two sebaceous tumours which were lodged within the skull. One of these cysts he himself found in the tissue of the pia mater, under the cerebellum. The other case, it so happens, fell under my own immediate observation, and is now in the Museum of St. George's Hospital.

In this case the cyst was, as Mr. Paget states, inside the skull; but although thus deeply seated, there are, I think, strong grounds for believing that this cyst was originally developed outside the skull.

A careful examination of this preparation (Series ii. 249), consisting of a portion of the occipital bone taken from a child  $2\frac{1}{2}$  years old, shows at the central part of the outer surface a small hole, which leads obliquely towards the torcular Herophili, where there is a depression an inch long, in which was lodged the sebaceous cyst contained in the layers of the dura mater. The lower part of this depression is very shallow, but the upper part is cup-like, with prominent and abrupt borders.

The hole leading into the cup-like cavity within the skull certainly points to the possibility that, in this case at any rate, a sebaceous tumour, deeply seated, covered

in by bones even, may, after all, have originated in the superficial part in connection with, or immediately under, the skin.

Nothing, generally speaking, is easier than the diagnosis of the sebaceous tumours about the scalp. Errors in diagnosis have, however, been committed even with these tumours. Lallement, it is well known, mistook an encephalocele for a sebaceous tumour, and attempted to cut it out. And once I was requested by a surgeon to remove from the scalp of a young woman a small sebaceous tumour, which, I was told, had already been removed twice, but had reappeared. Such a history for a sebaceous tumour was an odd one; but the secret of the reappearance of the tumour was soon explained when I came to examine it. In size and shape it certainly resembled a sebaceous tumour; but on putting my finger on to it, I at once perceived a distinct pulsation in the tumour; and this, and other points which need not now be alluded to, led me to believe that the tumour was of an encephaloïd nature and connected with the bones. Months rolled on, and such it ultimately proved to be. Small fatty tumours, which are sometimes found in the region of the scalp, may very easily be mistaken at first sight for sebaceous tumours, and of this I have seen several cases.

To the practical surgeon the removal of a sebaceous tumour from the scalp must ever be a subject of no little anxiety; not on account of the operation itself, for that is an easy matter, but on account of the terrible consequences which now and then follow an operation of this kind.

The operation itself is a very slight one; so slight, indeed, that nothing is thought of it, either by the patient or by the friends; and as to the results, there is not the slightest misgiving. The tumour is removed, and all appears to be going on well, when suddenly erysipelas of the scalp supervenes; and, worse still, this operation, so trifling, is sometimes followed by purulent infection and all its terrible consequences.

With the possibility of such results, all the more distressing because the whole matter was apparently so slight,

it behoves the surgeon carefully to guard his patient by every possible means against such an untoward issue. And first of all, before undertaking an operation ever so slight, most carefully should the patient's health be inquired into. The general health may appear to be good; but the surgeon must not be satisfied with this: he must carefully inquire into the state of the viscera, and especially of the kidneys. I say especially of the kidneys; for we cannot impress too deeply on our minds that persons may appear to be in good health, and yet have unsound kidneys. Albuminuria, it is now well known, renders patients peculiarly liable to inflammations of a low type; and albuminuria, it must be borne in mind, may exist without the slightest sign to call attention to it. Several such cases have fallen under my own notice; one not long ago, in which an operation of the most trifling kind was followed by symptoms of poisoned blood, and after death the kidneys were found in an advanced stage of granular degeneration. With such a state of kidneys, all operations which can be avoided ought to be so. Most carefully too should the state of the atmosphere be looked to. With an easterly wind, for instance, I would postpone an operation such as the removal of a sebaceous tumour of the scalp. And we should also look to any baneful influence which may be at work at the time.

Some years back, I had cause deeply to regret that I had not done this. A lady, from whom I had previously removed several sebaceous tumours, came up to town to have another removed. It was causing her some little inconvenience, and she had made up her mind to be rid of it. She was in her usual good health. The operation was performed, and within twenty-four hours it was followed by diffuse cellular inflammation of the scalp; this was doing well, when purulent infection made its appearance, and the patient died in a few days.

A day or two after the attack, I learnt that there was a good deal of erysipelas about at the time.

As to the operation itself, it is of the simplest kind. In small and middle-sized tumours, it is best to divide the outer coverings and the front part of the cyst by one



incision, and, after squeezing out the sebaceous matter, to lay hold of the cyst with a strong pair of forceps, and pull it out. This is a mode of operating peculiarly adapted to sebaceous tumours of the scalp, which in general are remarkably loose in the beds in which they lie; the connections with the surrounding parts are but slender—so slender, that it very seldom happens that anything like dissection is required. The same mode of operating has been recommended for the removal of the sebaceous tumours about the brow and face. I have seen it tried, and very seldom with success. To remove one of these sebaceous tumours requires very careful dissection, such are the close connections of the cyst with the neighbouring parts. In large sebaceous tumours of the scalp to which the skin is closely adherent, it is better to remove a portion of the skin along with the cyst; but it must be remembered, however, that the integument is intimately connected only with the most prominent part of the cyst; nearer to the skull the connection is much looser, so that here the skin can be easily dissected off the tumour. In a preparation in the Museum of St. George's Hospital may be seen a sebaceous tumour, in which, such was its enormous size, I was obliged to remove a very large piece of the skin; and in the College Museum may also be seen a very large sebaceous tumour, covered by its integument, which was removed by the late Mr. Liston.

I have already said, that what is to be most dreaded after the removal of a sebaceous tumour of the scalp is either erysipelatous inflammation or purulent infection; and hence the reason why we find surgeons recommending that these tumours should be removed by caustics, which they think are much less likely to be followed by any untoward results. In England, caustics are not commonly resorted to by surgeons for operations such as these; but abroad, and especially in Paris, are to be found several surgeons who strongly advocate this mode of operating. The Vienna paste was the caustic thus used by Marjolin, one of the best and most practical surgeons of his day. Latterly, however, it is the caustic potash which has been most vaunted, and by M. Legendre, who

has collected together an array of fatal cases of erysipelas of the scalp after the removal by the knife of sebaceous tumours of this region, most of which occurred in Paris, some in hospital, some in private practice.

M. Legendre's mode of applying this caustic, as far back as 1839, is, it will be seen, very similar to that of applying the chloride of zinc nowadays in cases of cancer. Lines, as in a crucial incision, are to be traced over the tumour, by means of a pointed piece of wood dipped in the strongest solution of caustic potash, and this application is to be repeated on subsequent days; the eschars are then to be slightly scratched with the point of a sharp bistouri, great care being taken not to get into the living tissues; and in the little furrows thus made some more caustic is to be dropped; and thus on, until the cyst is reached, when it is to be laid hold of with a pair of forceps and dragged out.

I have resorted to caustics for the removal of sebaceous tumours of the scalp; but instead of applying them as recommended by M. Legendre, I have simply rubbed the caustic over the skin covering the most prominent part of the tumour; and after the separation of the eschar I have found no difficulty in pulling out the cyst.

Lastly, in some of our counties we have wen-charmers, who, knowing well how loose are the connections of a small sebaceous tumour of the scalp with the parts around, destroy the skin gradually with strong nitric acid, after which they pull out the cyst and its contents.

PRESCOTT HEWETT.

## VIII. INFLAMMATION OF THE RETINA.

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IN placing a few cases of retinitis on record in the *St. George's Hospital Reports*, I have thought it would be more interesting, and at the same time useful, to accompany them with a short *résumé* of the whole subject of retinitis. Anything like a complete essay on the subject would be out of place in these pages; and even if it were otherwise, I should hardly feel justified in making the attempt. The ophthalmoscope cannot now be said to be an instrument peculiar to the ophthalmic surgeon. Physicians are learning to appreciate its advantages as a valuable aid to diagnosis and prognosis, especially in cerebral affections; and the medical schools have now recognised the necessity of teaching its use. It must in future be in the hands of every well-informed medical man, even if it does not become as necessary an instrument as the stethoscope. As a result of this extended use, much attention has of late been given by many workers, and notably by Dr. Hughlings Jackson and Dr. Clifford Allbutt, to the study of the circulation both of the optic nerve as seen in the optic disk, and of the retina, with the view of ascertaining how far any change of vascularity evident in the fundus of the eye may be regarded as an index of changes in the cerebral circulation. And although the optic nerve is perhaps more interesting to the physician than the retina, the circulation in the former case being essentially part of the cerebral circulation, and that of the latter being in a measure distinct, yet the subject of inflammatory changes in the retina cannot be uninteresting, if we bear in mind that the connection between the two is so intimate, the influence of the one upon the other so marked, that optic



neuritis can hardly exist without more or less implicating the immediately-surrounding retina; and that retinitis, except it be of very limited extent, always produces hyperæmia or inflammation of the optic disk. The optic tract, chiasma, and nerve receive their blood-supply chiefly from the choroid plexus and pia mater; the optic tract generally receives also a branch from the middle cerebral artery; and close to the sclerotic the optic nerve receives the short ciliary arteries, which are given off from the ophthalmic soon after the arteria centralis retinae. The source of the blood-supply thus explains the influence which pathological changes of nerve and retina exercise the one upon the other, and at the same time fully accounts for the fact, that descending optic neuritis does not advance uninterruptedly to the retina, but its progress is always temporarily arrested at the disk, only implicating, in the first instance, a slight ring of retina and choroid, accounted for by the anastomosis which exists between the short ciliary arteries and the choroidal vessels around the optic nerve. Secondary retinitis may, however, and frequently does, occur in these cases from mechanical interference with the circulation. These considerations must be my apology for the present paper.

In commencing the study of retinitis, one is at first almost bewildered with the variety of classifications of its forms, and the different names these forms have received. The enumeration of some of them will be almost an account of the subject in itself. The following retinal inflammations have been described by various authors: idiopathic, serous, acute serous, parenchymatous, diffused interstitial, exudative, suppurative, apoplectic, albuminuric or nephritic, leucæmic, syphilitic, central-recurrent, perivascular, diabetic, glycosuric, central, peripheral, neuro-retinitis, diffuse neuro-retinitis, retinitis pigmentosa, choroido-retinitis, and retinitis classified according to the size, colour, form, or position of the spots or patches. From this list one may form a rough idea of the causes and nosology of inflammation of the retina; and at the same time cannot fail to see how artificial and unpractical a classification on any one basis is, whether that basis be cause, symptoms, ophthal-

moscopic appearance, or minute anatomy. Some of the above names are those which were given to a few rare forms when they were first described, and which at present, until the peculiarities are better understood, it is probably useful to retain; but a profuse nomenclature does not lead to that clear comprehension of the subject which ought to be the aim of every writer.

Of the above list of forms of retinitis, the idiopathic may hardly be said to exist: it is the peg on which to hang the description of a typical case of the disease; but I have not seen the record of a satisfactorily clear case, neither have I ever myself examined one. What are described as the parenchymatous, diffused interstitial, and syphilitic forms of retinitis are one and the same inflammation, ophthalmoscopically and pathologically indistinguishable, and differing only perhaps in their history. I am strongly of opinion, that what is understood by the two former is generally syphilitic in origin. Serous and acute-serous retinitis may be said to be the first stage of the more acute forms of the above, and hardly merit a separate place on the list, unless we wish to describe an acute form. Apoplexies of the retina may occur in any form of retinitis, and are a common lesion produced in the course of the inflammatory changes, and resulting from the turgid condition of the vessels and degeneration of their coats; the latter change being the cause of its constant and extensive occurrence in nephritic retinitis. The apoplectic cannot, therefore, be described as a distinct form. Extravasations of blood occur sometimes in mechanical hyperæmia, when there is no retinitis present; also in cases of hypertrophy of the heart, or in suppression of the menses.

The classification which appears to me to be the most practical, and therefore the best, is that adopted by Professor Stellwag von Carion, of Vienna. It is the one I shall adopt in this paper, rather than attempt the construction of a new one, inasmuch as all the special varieties which have been described can find a place under one or other of its forms. I shall first enumerate the causes which are known to produce retinitis, and then proceed

to describe—first the general symptoms, and then those of each variety, with the ophthalmoscopical appearances, and, as far as is known, the morbid anatomy; adding the notes of such cases as have come under my own observation by way of example, with the treatment adopted in each case.

*Causes of retinitis.*—It is not always possible to determine accurately the cause of retinitis. It exists sometimes without a very distinct history as to the nature of its origin; but generally we shall find the cause or causes amongst the following:

1. Irritation, such as *prolonged* exposure to very bright light; *prolonged* straining of the accommodation, as in neglected or undiscovered hypermetropia. In both instances, long continuance of the irritation is more likely to produce it than intensity.
2. Wounds of the tunics of the eye.
3. Constitutional syphilis.
4. Prostration from starvation, fevers, pregnancy, &c., and perhaps vascular changes from heart-disease, &c.
5. Bright's disease, especially in its later stages.
6. Leucocythemia.
7. Diabetes.
8. Embolism of the central artery of the retina.
9. Retinal extravasations.
10. Entozoa.
11. Intraocular growths.
12. Choroiditis, irido-choroiditis, or irido-cyclitis.
13. Posterior scleral staphyloma.
14. Optic neuritis.
15. Meningitis, whatever its cause. Tumours of the brain or base of the skull, or cerebritis, produce optic neuritis; but if inflammation of the membranes be present, an extension to the retina is very common.
16. Orbital growths or inflammations.

*Symptoms.*—Inflammation of the peripheral portions of the retina may exist with little or no disturbance of the visual power. Retinitis, however, generally first warns the patient of its existence by producing a general mistiness



of vision, which may increase until the eye is unable to perceive the largest letters, and frequently some diminution of the visual field. There is commonly some pain of a subdued character in the eye affected, and over the brow; at other times there is none; there is not usually any photophobia, neither is there any conjunctival injection nor other change in the external appearance of the eye. Ophthalmoscopically we find a greater or less degree of grayish opacity of the implicated portions of the retina, which conceals the epithelium and vessels of the choroid, with a tortuous and turgid condition of the retinal veins, well seen in the smaller branches. Except when the inflammation is confined to the peripheral portions of the retina, the margins of the optic disk and choroidal aperture are indistinct or invisible, and very often there are small blood-extravasations along the course of the vessels. There is hyperæmia of the optic disk, and sometimes it is swollen and opaque. The vitreous is cloudy, varying from a *slight* haziness to a degree of opacity obscuring all the details of the fundus of the eye.

The inflammatory process always commences in the connective-tissue framework of the retina (Stellwag), and thence extends to the elements of the retina, producing amongst its layers or upon its surfaces some serous or gelatinous exudation. The nervous elements are generally the last to be attacked, but when implicated, never recover. The vessels are early implicated, and their walls speedily undergo fatty degeneration. There is a great tendency to extension of the inflammation to the choroid, especially in the exudative form. The hæmorrhages and exudations may be either into the retinal tissue or upon its surfaces; their appearance and shape will depend upon their position: if large and rounded, they will be situated amongst the connective tissue of the granular layers of the retina; if small and striated, amongst the nerve-layers; and if large and irregular, on the surface of the retina. These points of diagnosis will be hereafter found to be of importance with regard to the question of prognosis.

Professor Stellwag von Carion divides retinitis as follows :

1. Diffuse neuro-retinitis.
2. Exudative retinitis.
3. Nephritic retinitis.
4. Pigmentous retinitis.

1. Diffuse neuro-retinitis is by far the most common form of the affection, and is marked by a central cloudiness, involving the optic disk and the surrounding retina. The cloudiness is sometimes sufficient to render invisible the margin of the optic disk, the choroidal aperture, and the choroidal stroma; at other times it is so slightly marked, that a good light and careful examination are necessary to recognise its existence. But there is always a dilated and tortuous condition of the veins, and often here and there an extravasation of blood upon or surrounding them. The arteries in the first stage of the disease are normal in size, but may become contracted as the case progresses. The mistiness of vision extends over the whole field, and is generally well marked. Micropsia—a seeing of objects diminished in size—is frequently present.

The other general symptoms have been before described. Diffuse neuro-retinitis may occur in one or both eyes. It may be produced by any of the causes enumerated above, but by far the most common cause is constitutional syphilis. It comes on as one of the secondary manifestations of that disease, and not unfrequently accompanies iritis, or follows it as the iritis is disappearing. Generally, however, the retinitis comes on alone. Another not uncommon cause of diffuse neuro-retinitis is an extension of inflammation of the optic nerve, and especially when that is caused by meningitis (Stellwag).

*CASE I. Diffuse neuro-retinitis of one eye. Syphilitic history. Rapid aggravation of symptoms from deficient food. Improvement.*

Ann S., married, æt. 49, with a history of syphilis, came to me at the Royal London Ophthalmic Hospital, Moorfields, January 27th, 1862, with neuro-retinitis of the left eye. She first discovered dimness of vision in the eye about three weeks ago, and it has been rapidly increasing. During the last week she has had considerable pain of an

aching character in the eye and around the orbit, which has been daily increasing. Her health is much reduced, from having had deficient nourishment during the last fortnight. She cannot now count fingers with the affected eye. With the right she reads No. 1 Jæger.

*Ophthalmoscopical examination.*—The optic disk is much blurred, the retina for a considerable distance is hazy and of a grayish appearance, rendering portions of the retinal vessels indistinct and occasionally invisible. The veins are tortuous, but not much enlarged; and there are a few small hæmorrhages, but none near the optic disk. The choroid, where it can be seen, is pale. The vitreous is slightly turbid, so that the whole fundus is enveloped in a slight haze. There has been no iritis.

Two leeches were applied to the temple, and rest, generous diet, and bark were prescribed. Jan. 30th. The pain is diminished, and the mistiness of vision is less, owing to a clearer condition of the vitreous. Feb. 3d. The pain is almost gone; the vision is more distinct, can distinguish the outline of features. The health is improving. 6th. There is still some improvement; the eye can count fingers, but cannot make out letters of No. 20. No pain, and no change is apparent to the ophthalmoscope. The bichloride of mercury was prescribed three times a-day in decoction of cinchona. 27th. The improvement is very gradual; the retinal opacity has much diminished, and no hæmorrhages are to be seen. The veins are still tortuous and of about the same size. The arteries are rather small. There will probably be considerable atrophy of the optic nerve. There is unfortunately no farther note of the case.

CASE II. *Myopia of  $\frac{1}{2}$ ; large posterior sclerotic staphyloma in both eyes. Neuro-retinitis. Great improvement. Recurrence four years after. Some degree of atrophy.*

M. A. E., æt. 46, came to the Moorfields Ophthalmic Hospital June 8th, 1865. She was wearing concave glasses of two inches focal distance, and had worn the same power for nearly twenty-one years for distance; but for reading or needlework she was in the habit of wearing glasses of three and a half. The two-inch glasses appeared quite to neutralise her myopia; but there was so much mistiness of vision, that it was impossible to test exactly the condition of refraction. She complained of a good deal of pain in both eyes, rather more in the right than the left, and of some lacrymation if she attempted to use the eyes.

*Ophthalmoscopical examination.*—Right eye: Large posterior staphyloma, crescentic in shape, to the outer side of the optic disk. Slight remains of the choroidal stroma, and a narrow line of pigment around its margin. The optic disk was reddish, its margin somewhat blurred, and the retinal veins were distended and tortuous, and stood out in strong contrast as they crossed the white sclerotic: one was distinctly seen to pulsate as it crossed the optic disk. The retina was markedly grayish to the inner side of the nerve; but there was nothing abnormal to be seen at the macula lutea. There were no hæmorrhages. Left eye: Large irregularly-shaped posterior staphyloma entirely surrounding the optic disk, broader to the outer side. The disk was hyperæmic, and the retinal veins tortuous and full of blood. There was the slightest possible haze



about the retina. The vitreous contained numerous floating bodies, but was otherwise clear. The choroid appeared to be thin in places.

Rest was prescribed, and one-eighth of a grain doses of bichloride of mercury in an ounce of decoction of bark three times a-day. This was continued till the end of August, during which time vision gradually became distinct, and the vascularity of the disk and retina slowly improved. At the last examination, the veins were still larger than normal, and the arteries rather small; but all opacity of the retina disappeared, and the disk became whitish. She continued to wear glasses of the same focal power.

Aug. 28th, 1869. She again presented herself at the Hospital, complaining of pain in both globes, photopsies, and floating bodies. There was also some conjunctival injection, particularly in the right eye. Some sulphate of zinc lotion, gr. j. to  $\bar{3}$ j. of water, was prescribed; and a week later, on my return to town, I saw her.

*Ophthalmoscopic examination.*—The posterior staphyloma was much the same; perhaps the choroidal atrophy was more complete in both. The arteries were small, but the veins full and pulsating. There was evidently a recurrence to the condition which had brought her to the Hospital more than four years before. The vitreous is slightly turbid in the right eye; in both there are numerous small floating opacities.

The condition rapidly improved; and on Oct. 7th the disks appeared to be somewhat white and shrunken, and it is probable that some amount of atrophy had existed previously to the recurrence. The choroid is thinner, and there is some disturbance of its pigmentation. With  $-2$  the acuteness of vision is  $\frac{20}{100}$  in both eyes; with  $-3\frac{1}{2}$  the left eye reads No.  $1\frac{1}{2}$  Snellen; the right No. 2; both at 4".

CASE III. *Neuro-retinitis of right eye. Syphilis. Some implication of the choroid. Recovery.*

L. A. L., æt. 23, came to me at the Moorfields Hospital in December 1864. She appeared to be suffering from some slight ophthalmia of the right eye, for which some alum-lotion was prescribed; the eye was not examined. In the following February, however, she presented herself again, with considerable deterioration of vision in the same eye. She states that the lotion cured the ophthalmia; but that ever since, the sight had been a little "misty;" and now that it was getting worse, she thought she had better come to the Hospital. She had an ulcerated throat a few months before. She could only read No. 10 J. with it, and that not easily. The pupil was dilated with atropine.

*Ophthalmoscopic examination.*—The vitreous was fairly bright; the optic disk was much blurred, the margin being quite obscured; and there was an appearance as of a fog extending some distance from the disk, gradually dying away as transparent retina was approached. There were no apoplexies; but downwards, where the retina was sufficiently clear to allow the choroid to be seen, there were three pigment-patches, one of the largest being placed behind a large retinal vein. There was one small exudation to the outer side of the disk, but none in the vicinity of the yellow spot. This patient had no pain.

Iodide of potassium was ordered, and a Heurteloup's artificial leech to the temple. March 13th. Sight improved. Makes out No. 4. Retinal veins less distended. 27th. Has had some pain in the right temple for the first time. Has been using the other eye. Can only read No. 6 to-day. The retina is losing its haziness. The optic disk is more distinctly seen, and appears to be pink and injected. Some more blood was removed by an artificial leech. April 10th. She has been gradually improving, and can read No. 4 to-day easily. The injection of the disk has disappeared. She did not again attend. In this case mercury was not given, as there was no exudation. It is to be regretted that the eye was not examined with the ophthalmoscope when she first came in December, as the retinitis was no doubt then commencing.

CASE IV. *Retinitis in left eye. Extreme deterioration of sight. Recovery of useful vision. Attack of keratitis in the other eye.*

James P., æt. 31, came to the Ophthalmic Hospital on October 30th, 1865. He was unable to count fingers with the left eye, and could only perceive bright objects. The field seemed to be normal in extent, vision being about equal in every part. With the right eye he could read No. 1 Jæger. He complained of pain in the eye and temple, but there was no lachrymation.

*Ophthalmoscopical examination.*—Moderate hyperæmia. Optic disk indistinct. A small hæmorrhage on the disk. The retina swollen, and apparently infiltrated with serum for some distance, the yellow spot appearing like a dark depression in the swollen retina.

*Treatment.*—Rest. The eyes to be tied up with a bandage. Iodide of potassium, and every week a blister behind the ear. In less than six weeks the eye could read letters of No. 14, but no further improvement took place. The infiltration of the retina disappeared, but the disk became white, and small patches of the choroid became atrophied. During his convalescence a sharp attack of keratitis came on in the other eye, preceded by a slight attack of conjunctivitis in both. The keratitis was of simple form, and speedily got well with belladonna fomentation. This patient denied having had syphilis, and there was no evidence of either the acquired or hereditary disease.

CASE V. *Diffuse neuro-retinitis in both eyes. Syphilis. Great improvement.*

William T., æt. 40, the subject of constitutional syphilis, came to the Hospital July 24th, 1865, on account of a general "mistiness" of vision, accompanied by dull deep-seated pain in both brows. He could make out letters of No. 4 J.; but at a distance everything appeared enveloped in haze, and rendered indistinct. He had had primary and secondary syphilis.

*Ophthalmoscopical examination.*—Great hyperæmia; veins turgid, and in places indistinct; optic disk swollen and œdematous, its outline obscured; no change apparent at the yellow spot. Above the disk, but close to it, a slight film of inflammatory deposit was seen, in one eye, to cross the retinal vessels; and above that, again, was one small extra-

sation of blood. In the other eye, portions of the vessels also appeared somewhat indistinct and veiled. A week later, the optic disk was less swollen, and the general haziness of the retina had diminished. In both eyes there were several small white deposits, which in one eye were confined to the outer side of the optic disk. August 14th. The transparency both of disks and retina was partially restored; the white deposits had entirely disappeared. Distant objects appeared more distinct. 28th. Much improved; could read No. 4.

January 25th, 1869. It is three months since he has shown himself. There appears to be some slight haziness of the retina about the descending retinal vessels of the left eye, and to the outer side of the disks in both. The optic disks, too, are perhaps a little white; but the vessels appear to be normal. The vision is clearer, but continues the same in point of acuteness.

The *treatment* was, of course, rest, which in hospital out-patients is always very incompletely carried out. Plummer's pill night and morning, and iodide of potassium three times a-day.

CASE VI. *Diffuse neuro-retinitis of right eye. Prolonged straining of the accommodation; great implication of vision. Recovery.*

Elizabeth H., æt. 25, a milliner, came to the Hospital March 9th, 1868, complaining of throbbing intermittent pain in the right eye, which had commenced twelve days before. She could read No. 2 J. at one foot with it, but letters at a distance appeared "misty." She states that she works thirteen hours a-day at making widows' caps, and for some months has felt quite exhausted at the end of the day's work, with gradually-increasing pain across the forehead and top of the head. She sleeps well. There is no history of syphilis. The other eye is good; acuteness of vision =  $\frac{20}{20}$ . There is a manifest hypermetropia of  $\frac{1}{30}$ .

*Ophthalmoscopic examination.*—Disk swollen and congested; retina opaque and gray to the extent of rather more than the diameter of the disk all round, gradually shading off. Retinal veins somewhat tortuous.

March 30th. Disk more swollen, and retina more extensively affected, with a few apoplexies. The sight was considerably worse; could with difficulty make out letters of No. 20. I therefore gave her one grain of calomel, and half a grain of opium, three times a-day. This was followed by a gradual diminution of the pain. April 27th. The gums have been slightly tender during the last week, and she has taken only one pill a-day. The disk is much clearer, and retina also; but there is little improvement of sight; reads No. 19. To discontinue the pills, and to take tinct. ferri  $\mathfrak{m}\mathfrak{xv}$ . in mist. quinae  $\mathfrak{z}\mathfrak{j}$ . thrice daily. May 25th. The right eye reads No. 2. Disk not swollen; retina less opaque.

CASE VII. *Diffuse neuro-retinitis of right eye. Syphilis. Cloudy vitreous. Partial recovery.*

Ellen L., married, æt. 31, came to Moorfields June 1st, 1868, with great dimness of sight in the right eye, which had been gradually increasing since she first noticed it six weeks before. There was some



aching pain in the orbit and brow; she could barely make out letters of No. 20. She has had five children, and has had no miscarriages. She frequently, however, suffers from ulcerated throat.

*Ophthalmoscopic examination.*—The vitreous is very cloudy, with several opaque streaks floating in it. The whole fundus is, of course, much veiled; the position of the optic disk is discovered only by means of the retinal vessels, and by a small paler spot corresponding to its physiological pit. The retina is throughout grayish, but neither hæmorrhages nor exudations are visible.

The treatment was a purge and iodide of potassium, three times a day. June 11th. The vitreous is clearing. There are some white streaks, and a few minute white dots, in the neighbourhood of the yellow spot. 18th. Vitreous much clearer. White streaks and spots have all disappeared. The disk is still very ill-defined. Slight pain still comes on occasionally. She is now able to read No. 14 with the affected eye. My notes have no farther record of this case.

CASE VIII. *Retinitis from violent pressure on the globe. Rapid recovery. Syphilitic history.*

Joseph S., æt. 30, came to me at the Ophthalmic Hospital May 4th, 1868. He could not count fingers with the left eye; the right was perfectly good. His story was, that when down on the ground in a quarrel, his adversary, in holding him, had violently pressed his thumb upon his left eye. When he was allowed to get up, he found he could see nothing with the eye which had been so maltreated. This had occurred fourteen days before, and he now presented himself for advice. A drop of atropine solution was applied to the eye.

*Ophthalmoscopic examination.*—There are several posterior synechiæ. There is considerable haziness of the vitreous; but the optic disk is seen to be blurred, and the congested retinal vessels indistinct, the latter being surrounded by swollen and apparently œdematous retina. No hæmorrhages are visible. There is some pain and ciliary injection.

*Treatment.*—Belladonna fomentation and iodide of potassium mixture thrice daily. May 18th. Pain better, but not gone. The ciliary injection still continues. He owns to a chancre two years ago, which was several weeks getting well. He has had some slight sore-throat, but no rash. Same treatment continued. 25th. Much better. Pain and injection quite gone. Vitreous clearing. Swollen condition of retina subsided. No exudations. June 8th. Vitreous much clearer, and outline of disk more distinct. Hyperæmia decidedly less. There is considerable improvement of vision, the eye being able to read small words of No. 2.

CASE IX. *Acute neuro-retinitis of right eye. Serous effusion. Hæmorrhage at the yellow spot. No perception of light.*

John H., æt. 56, came to Moorfields August 20, 1868. He had suddenly lost the sight of his right eye some weeks ago, the eye having been "weak" for only a few days previously. There is now not the slightest perception of light.

*Ophthalmoscopical examination.*—The optic nerve is swollen and cedematous. The retina is throughout gray and opaque, and there is apparently serous effusion into and beneath it, the retinal vessels being in many places obscured. At the yellow spot, where there is no infiltration, there is a small recent hæmorrhage. The arteries, where they can be seen, appear to be small. This patient took iodide of potassium for some time, but regained no perception of light.

CASE X. *Neuro-retinitis, left eye; syphilis. Regularly striated form of deposit round the yellow spot.*

Charles W. G., æt. 29, a rather stout florid man, came to the Hospital Nov. 19, 1868. He first noticed anything wrong with the eye three weeks ago, and it has been gradually getting worse since. He had syphilis four years ago, and twelve months since a slight rash on the chest and under the arms, but no sore-throat. He has had slight pain in and around the eye, with a general mistiness of vision. He now reads with that eye No. 3½ Snellen, and with the accommodation at rest the acuteness of vision =  $\frac{20}{20}$ . In the right eye S. =  $\frac{20}{20}$ . Both eyes are emmetropic.

*Ophthalmoscopical examination.*—The media are quite transparent. The optic disk is swollen and covered with lymph; the retina around the disk is gray and opaque to the extent of about  $3\frac{1}{2}$ ''; the margin of the disk and the choroid to this extent are obscured, the infiltration gradually shading off to the healthy retina and choroid. The retina is also somewhat swollen and opaque, and of a whitish-gray colour, by the sides of the larger vessels; the veins are large and tortuous, but there are no apoplexies; the arteries are normal. The yellow spot is dark in colour, and radiating from it in every direction; but that most distant from the optic disk are numerous fine white striæ, nearly two lines in length in the ophthalmoscopic image, arranged with the most beautiful regularity, and close together. The striæ are exceedingly delicate and brilliant; not coalescing, but leaving a central space nearly a line in diameter, which is occupied by the yellow spot.

*Treatment.*—Four leeches to the malar bone, with calomel and opium. The gums speedily became tender, and the pills were discontinued at the end of seven days, when iodide of potassium, in 8-grain doses, was substituted; which again, four days later, was increased to 10 grains, three times a-day. November 30th. The lymph is becoming absorbed; the retinal infiltration is subsiding, and the delicate white streaks around the macula lutea are disappearing. January 7th, 1869. The retina is somewhat opalescent round the yellow spot. All the striæ have disappeared, but there are seven or eight minute white dots taking their place. The lymph over the disk is all absorbed, but there are still some whitish streaks by the side of some of the vessels. The choroid round the optic disk, where it had been most hidden by the infiltrated retina, is much atrophied. The optic disk is white, but the vessels are of a fair size. There has been no appreciable improvement in the acuteness of vision, but the sense of mistiness has materially diminished. The nerve-elements have no doubt been much implicated, and therefore permanently damaged.

CASE XI. *Double retinitis following neuritis; total destruction of vision. Tumour of cerebellum, with basilar meningitis.*

Alfred N., æt. 11½, was brought to the Victoria Hospital for Children in the beginning of October 1868, on account of supposed paralysis. He was admitted into the hospital under the care of Dr. Sidney Hayward, who soon after requested me to see him. The date of my examination was October 28th. The appearance of the boy, who was very intelligent, was amaurotic: his pupils were dilated, and although he could see, he stated that everything was "in a fog;" he could count fingers, and could even make out large letters corresponding to about No. 20. His gait was peculiar, resembling very much that in cases of locomotor ataxy. With his eyes shut he could not stand without support, but extended his hands to clutch the nearest object; there was no paralysis, for he carried a boy almost as big as himself across the ward at my request, and could remove a heavy chair from one part of the ward to another carefully and easily; in fact, his gait was much improved by being thus weighted. The boy was exceedingly cheerful, although he suffered from some pain at the top of the head of a dull aching character. This had commenced, he said, about a week ago; his sight began to fail about the same time.

*Ophthalmoscopic examination.*—Both optic disks were entirely covered with lymph, which extended over the retina for a short distance, completely enveloping the bifurcation of the vessels. The retina beyond was opaque, with streaks of lymph by some of the larger vessels, and farther still there were a few hæmorrhages. The lymph was evidently undergoing absorption. During the examination, there was considerable difficulty in placing and preserving his head and eyes in the required position, as all his movements were by jerks, caused by his loss of coördinating power. The symptoms pointed to some disease or tumour of the cerebellum, with secondary mischief at the base of the brain.

On November 4th I obtained the following history from his mother. She had first noticed "motions about his limbs," and his staggering gait, about five weeks ago. He has had no fits, and always sleeps well; there is no appearance or evidence of syphilis about the mother, who has had twelve children, six of whom are living. She has had no miscarriages. She is, however, a weak and peculiarly nervous woman, and has very nearly lost the sight of her left eye, which she states first became dim about four months ago. She frequently has pain at the top of the head, and says that the sight of the left eye has been gradually getting worse, and that now the right is also affected. Her left optic nerve is somewhat atrophied, and there is evidence of former neuritis. The right optic disk is decidedly hyperæmic.

After this date I made frequent ophthalmoscopic examinations of the boy's eyes, which in a fortnight were perfectly blind. The lymph rapidly became absorbed, the disk white and shrunken, and the arteries small; the retina retained its opacity and whiteness, although all lymph and hæmorrhages disappeared. The boy remained cheerful, but became somewhat listless, and died, I believe after a fit, on January 24th, 1869. I very much regret that, owing to absence from town, I was



unable to be present at the post-mortem examination; but I believe Dr. Hayward intends to publish this very interesting case *in extenso*. He informs me that there was considerable enlargement of the cerebellum; the pia mater at the base of the brain was covered in places with lymph, and there was considerable accumulation of serum.

CASE XII. *Double neuro-retinitis. Choroid much implicated. Probable syphilitic origin.*

William B., æt. 37, came under my care at the Moorfields Hospital March 15th, 1869. He had been suffering for some time from asthenopia. The eyes were slightly hypermetropic, and his vision was improved by weak convex glasses, when he could read No. 4 J. at one foot. At distance his acuteness of vision was only  $\frac{20}{200}$ . The patient denied syphilis. He has been married sixteen years. His wife has had one child, which, however, only lived four weeks, and one subsequent miscarriage. He is a great smoker.

*Ophthalmoscopical examination.*—Considerable hyperæmia in both. Margin of disks hazy and indistinct. Immediately around the disks the retina is opaque, and elsewhere there are several circumscribed spots of opacity, completely concealing the choroid. There is some disturbance in the choroidal pigmentation, most especially marked in the peripheral region. The vitreous is slightly turbid.

*Treatment.*—Rest. To discontinue smoking. Hydrarg. perchlor. gr.  $\frac{1}{16}$  t. d. March 22d. The margins of the disks are more hazy, but there is no inflammatory effusion. The retinal opacity extends slightly along the sides of the retinal vessels. There are numerous brilliant white dots about the retina. The vitreous is clearer. The patient thinks his vision improved. April 5th. He has not attended at the Hospital, and has therefore been a short time without medicine; he has also been using his eyes. The retina is unaltered, except that perhaps there are fewer white dots. June 7th. He is most irregular in his attendance, but fortunately his vision is not worse. Five grains of iodide of potassium was added to each dose of his medicine. 24th. Retina and choroid in the same condition; the optic disk is, however, less hyperæmic, but the arteries are somewhat small.

CASE XIII. *Neuro-retinitis in left eye. Atrophy. Subsequent hyperæmia in right.*

E. C., married, æt. 27, came under my care April 1st, 1868. She had for some time had occasional headaches; but about five weeks ago she was attacked with violent pains, at first in the head, and then around the eye, in the orbit, and over the temple. At the time that the pain commenced in the orbit, the sight of the eye began to grow dim. The pain has been gradually diminishing during the last three weeks; but the vision has been deteriorating. She has been under treatment for fibrous tumour of the uterus, with retroflexion, having had a bad confinement nine months ago. She has had four children, all healthy; the second, a strong sturdy boy, came with her to-day. He has a convergent strabismus. The right eye was "weak" during the fortnight that the left

was most painful, but with it she reads No.  $1\frac{1}{2}$  Snellen at  $1\frac{1}{2}'$ . In the left, the lower and outer section (nearly half) of the retina is blind; with the upper and inner part she can count fingers.

*Ophthalmoscopical examination.*—The optic disk is covered with lymph. The vessels are buried. The retina is opaque around the disk to the extent of three times its diameter from it, the haziness thence gradually shading off into transparent retina. The reddish-gray haze is well marked round the yellow spot. There are no apoplexies. There is some effusion beneath the retina downwards and outwards, which at one part seems slightly displaced. The vitreous was fairly clear.

Perchloride of mercury was prescribed,  $\frac{1}{16}$ th of a grain three times a day. April 8th. There is no alteration evident to the ophthalmoscope. May 6th. The patient has been laid-up with fever since last attendance, followed by desquamation of the cuticle. Great pain in the head, across the forehead, has been a prominent symptom throughout the attack, and continues now.

*Ophthalmoscopical examination.*—The lymph over the disk has nearly all disappeared; the commencement of the vessels are, however, still obscured. The retina is clearer. The disk is getting white, and there is a small patch of pigment above and to the outer side of it. The effusion beneath the retina has apparently disappeared.

The portion of retina without perception of light is about equal in extent, but has somewhat shifted its position. It is now situated directly downwards, very nearly half the retina being involved; whereas its position five weeks ago was downwards and outwards. There has been a little pain in the right eye, similar to the first pain that was experienced in the left. Eight-grain doses of iodide of potassium were given. 20th. The left disk is whiter. The right optic disk is slightly injected. She complains of having had a good deal of pain over the right eye. Two leeches were applied to the right cheek-bone. June 17th. The right disk is still red and injected. Sept. 9th. The left disk has become much atrophied, the arteries are very small, and there is some atrophied choroid and retina in the vicinity of the disk. The eye still counts fingers in rather more than the lower half of the field. The right optic disk is more hyperæmic. The retinal veins are seen to pulsate.

#### CASE XIV. *Retinitis in left eye, attributed to a blow.*

Dixon H., æt. 36, came to the Hospital June 28th, 1869, with dimness of vision of the left eye. He had a violent blow on the eye nearly four years ago, and it has always been weak since. Four months ago he noticed the eye was much dimmer, and that things looked smaller with that eye than with the other. There has been little or no pain. The left reads No. 10 J.; the right No. 1.

*Ophthalmoscopical examination.*—The left optic disk is very hyperæmic; the retina is very opaque for some distance around it, the veins being large and tortuous. Around the yellow spot are numerous small white spots, which are not arranged with any regularity. There are no apoplexies.

He was treated successively with perchloride of mercury and tinc-

ture of the perchloride of iron. The note on October 11th was: The disk is still hyperæmic. The veins large and tortuous. Small patches of atrophied retina close to the disk. Pigmental changes round the yellow spot. The vision is neither better nor worse. The man's health has much improved.

CASE XV. *Diffuse neuro-retinitis of right eye. Syphilitic origin.*

Arthur H., æt. 24, came to Moorfields October 11th, 1869, with great dimness of vision of the right eye, which had been coming on between three and four weeks. He can, however, make out No. 4½ Sn. with it. He has had a rash, but no sore-throat; has twice had gonorrhœa, but there is no cicatrix of a chancre, and he denies having had one. From his account, I think it is highly probable that he had a urethral chancre.

*Ophthalmoscopical examination.*—The vitreous is turbid, and has numerous black flakes floating in it. The optic disk is red and blurred. The whole retina is opaque, so that no trace of choroidal structure is to be seen. There are no hæmorrhages. The veins are large and tortuous, but very indistinct throughout. The left eye is perfectly healthy.

Oct. 18th. Reads No. 6 J., No. 3 Sn. The vitreous is clearing. There are no hæmorrhages and no exudations.

2. Exudative retinitis may commence with all the appearances of diffuse neuro-retinitis; but generally there are to be seen yellowish or whitish-gray patches, the presence of which at once takes it out of that category. These patches — which are sometimes exudations properly so called, at other times depositions into the connective tissue, which however, from the difficulty of diagnosing between them, are generally called by the former name—are of irregular shape and size, and may be situated in any part of the retina. They speedily become surrounded by collections of pigment, which are better seen as the inflammatory stage passes off. If the exudations are large and rounded, they will generally be found to be situated in the external layers of the retina, and the retinal vessels will be found running over them. If, on the other hand, they are small and striated, and perhaps numerous, they are situated in the inner layers of the retina, and generally involve the nerve-filament layer, and lead to sclerosis of the nerve-fibres, and consequent permanent disturbance of vision. These exudations gradually become absorbed and atrophied, when the pigmental layer of the choroid is seen to be altered or destroyed, and its other layers not infrequently completely atrophied. These symptoms of exuda-



tive retinitis are characteristic. The mistiness of vision may be only partial, and the diminution of the visual field will correspond with the position of the patches of exudation; but the patches are generally situated more or less in the vicinity of the yellow spot, and thus considerably implicate central vision; the more peripheral their situation, however, the less affected is the visual power.

Exudative retinitis is much less curable than the diffuse neuro-retinitis. The retinal and choroidal changes produced by the presence of the exudation preclude recovery in those tissues, and atrophy is generally the result. Frequently too the absorption of the exudative material is incomplete, a portion of it becoming permanent, and of course a source of atrophy to both retina and choroid.

CASE XVI. *Exudative retinitis of both eyes. Atrophy of portions of retina and choroid and optic disk. Blindness.*

M. A. B., æt. 28, came under my care at the Moorfields Hospital May 12th, 1864. She was an exceedingly pale woman, with very prominent eyeballs. She complained of considerable dimness of vision, with darkening of portions of the field. With neither eye could she make out letters of No. 20 J. The patient was the subject of hereditary syphilis, and probably of acquired also.

*Ophthalmoscopic examination.*—Both optic disks were swollen and covered with lymph. There were several large round and oval yellowish patches in the retina, but situated beneath the retinal vessels. Numerous hæmorrhages were dotted about the fundus around the patches. The two forms of retinitis might be said to be combined in this case.

This patient ceased to attend after June 30th, when the note was: The exudations are undergoing absorption, and the vascularity of the retina is diminishing. She, however, was brought to the Hospital Nov. 16th, 1865, perfectly blind, and with the fresh symptoms of partial paralysis of the facial on the right side, and great pain in the head. She had also become exceedingly deaf.

*Ophthalmoscopic examination.*—Patches of complete atrophy of the choroid and retina, surrounded wholly or partially by a rim of pigment. The optic disks were atrophied, white, with irregularly-defined margins, and surrounded with patches of atrophied choroid.

CASE XVII. *Exudative retinitis central in both eyes. Peripheral parts of field normal.*

M. A. W., æt. 28, came to Moorfields March 2d, 1868, with central exudative retinitis of both eyes. She can see large letters, but cannot read. She states that her sight has been getting bad since her last confinement twelve months ago. "Has not been able to see to thread a needle since Christmas." She has had frequent attacks of sore-throat;

has had five children, of whom the third only is living, and is unmistakably a syphilitic child. The pupils are somewhat dilated, and there is pain across the forehead and giddiness. The peripheral portions of the field of vision are good; but the acuteness diminishes gradually to the centre.

*Ophthalmoscopic examination.*—Both optic disks are reddish and indistinct. In the right eye there are three irregularly-shaped patches of a yellowish-gray colour, situated in the neighbourhood of the optic disk and yellow spot. They seemed to be raised, the vessels appearing to be curved in passing over the larger one. In the left eye the retina appears to be swollen, and infiltrated in several large patches; but there are not the same yellowish-gray patches that exist in the other eye. There are no opoplexies in either eye.

CASE XVIII. *Atrophied retina and choroid from exudative retinitis.*

*Right eye. Inner three-fifths of the field obscured.*

George H., æt. 28, came to the Hospital April 13th, 1868. The inner three-fifths of the field of vision of the right eye are obscured and misty; can barely count fingers. The remaining two outer-fifths are of average sensibility. The left eye is good. The sight began to be affected nearly seven years ago, when he noticed he could not recognise objects at a distance nor large ones, and that objects generally appeared enveloped "in a fog." He has had no pain. He had syphilis in 1856, but has had no throat nor skin affection; but he had, four years ago, a swelling over the right tibia. He has been married six years; but has no children.

*Ophthalmoscopic examination.*—There are several rounded patches of atrophied choroid, surrounded by and dotted over with pigment-patches about the yellow spot and outer part of the retina. The disk is rather white, but the vessels are of normal size.

CASE XIX. *Exudative retinitis in right eye. Choroiditis. Syphilitic origin.*

Henry T., a small spare man, æt. 28, came under my care August 27th, 1868, with great dimness of vision of the right eye, with which he could only count fingers at two feet distance. With the left eye he reads  $1\frac{1}{2}$  Sn. easily. He has a divergent strabismus of  $2\frac{1}{2}$  lines. He states, that the eye began to get dim twelve months ago, and that before that he believes the sight of it to have been good. He denies syphilis; but there are cicatrices about the throat, and mucous tubercles about the tongue, with syphilitic rash upon the face. There are also some cicatrices about the mouth betokening some hereditary taint.

*Ophthalmoscopic examination.*—The right eye was found to be very hypermetropic. The whole disk was visible at once in the direct examination. It was, however, indistinct, swollen, and injected. There were large patches of half-absorbed exudation, surrounded, some of them, by pigment, situated at some distance from the disk and to its outer side. There was also some disturbance of the pigment-layer all over the choroid, and some opacities of the retina. No hæmorrhages were visible; but there were several very small white patches of atrophied

choroid, which had probably been the result of the previous presence of blood or exudative material. The left eye was healthy, with the exception of a few roundish deposits or accumulations of pigment in the peripheral portions of the retina. This eye is slightly hypermetropic.

The field was found normal in the left eye, narrowed in all directions in the right. The hypermetropia of the right eye was found to be  $1-3\frac{1}{2}$ , with acuteness of central vision of  $\frac{2}{200}$ ; that of the left was  $\frac{1}{36}$ , with acuteness of vision of  $\frac{2}{20}$ . The treatment adopted was iodide of potassium, which he continued to take till the end of the year. The eye was then found to have a slightly diminished tension, though not perhaps amounting to  $-1$ . In March 1869 he came again, with a return of the rash on the face, and an increased mistiness, he thought, about the eye. The disk was somewhat white and shrunken; and the vitreous was clear, except that it contained a few floating opaque filaments. He began to take some perchloride of mercury for a short time, with the effect of removing his mistiness. Oct. 7th. The right optic disk is white. The arteries small. Veins rather large. Large patches of pigment about the atrophied portions of the choroid. There are a few stellate pigment-spots about the outer portion of the equator, none on the inner half, of the retina.

CASE XX. *Exudative retinitis in both eyes. Perfect recovery of vision.*

S. M., æt. 36, came to Moorfields October 12th, 1868. She only read No. 16 J. at one foot, and No. 200 Sn. at twenty feet. Her sight had been getting gradually "misty" during the last few weeks. She had had six or seven miscarriages. The mistiness of vision was central, and there is no contraction of the visual field.

*Ophthalmoscopic examination.*—Numerous fine brilliant white streaks and dots around the yellow spot in both eyes. The surrounding retina is slightly opaque. The disks are healthy; but the retinal vessels are increased in number. No hæmorrhages.

Perchloride of mercury was prescribed. Oct. 19th. There is no albumen in the urine. Some of the exudations have disappeared. 29th. Both eyes can read No. 4 J., S. =  $\frac{2}{40}$ . In both a few streaks are still visible. Nov. 12th. Can read No. 1 with weak convex (+24) glasses, which also render the acuteness of vision =  $\frac{2}{20}$ .

CASE XXI. *Exudative retinitis; left eye.*

H. R., æt. 32, came under my care, whilst taking charge of Professor Wharton Jones's patients, at University College Hospital, with great deterioration of vision. The right lens is opaque, and the iris is adherent to it by numerous posterior synechiæ. The left iris is free and bright, and shows no signs of a former iritis; but the eye only counts fingers. The patient has been married three years, but has had no children. Her eyes were good till about two years ago.

*Ophthalmoscopic examination.*—There is a large round grayish-white exudation in the retina, close to the optic disk, on its outer and lower side. Outside that, again, is another patch almost crescentic in shape. The retina is opaque immediately surrounding the patches, gradually shading off to transparent retina. The disk is slightly



hyperæmic. There are no hæmorrhages. The exudations became absorbed under the influence of biniodide of mercury, but left the choroid atrophied in their situation. This patient gained some useful vision. There was no albumen in the urine. There was well-marked micropsia in this case.

3. Nephritic retinitis, which might almost be considered a form of exudative retinitis, presents appearances sufficiently peculiar and constant to merit a separate description. I prefer the term *nephritic* to *albuminuric*, because albumen is by no means always to be found in the urine in these cases, although its presence would probably be discovered at some period, if the urine were frequently examined. Nephritic retinitis may come on at any stage of the kidney-disease, but more generally where the kidney-degeneration has considerably advanced. The first appearances are very similar to those of diffuse neuro-retinitis, the retina becoming at an early period infiltrated with serum. Hæmorrhages are more numerous, more constant, and more extensive in this than in any other form of the disease, and are present early. They are small and striated when situated in the inner layers of the retina; large and rounded when in the outer layers. Both forms often exist in the same case. As the disease progresses, white spots of exudation form around the central portion of the fundus of the eye; these gradually increase in size, fresh ones appear, and all soon coalesce, surrounding the optic disk with whitish exudation, which has been described as forming a mound around it. This whitish mound does not generally extend quite to the margin of the optic disk; but occasionally it does, the position of the disk being marked only by the convergence of the retinal vessels; as in one case which will be recorded below. A few small exudations generally remain detached at its distal margin, and the large exudation extends somewhat along the retinal vessels, rendering its boundary irregular. Around the macula lutea are numerous angular whitish or yellowish-white exudations, first described by Liebreich as arranged in a radiating form, and peculiarly characteristic of this form of retinitis. The vitreous is often extremely hazy, sufficiently sometimes

to completely veil the exudations above described. Vision is much implicated in nephritic retinitis, but the field is rarely laterally obscured. The subsequent improvement of vision will not be proportionate to the curability or amelioration of the kidney-disorder, but must essentially depend upon the amount of damage to the nerve-fibres. The retinal changes may begin to recede at any period of their progress. The white patches and large whitish mound are due to hypertrophic changes and inflammatory exudation amongst, and subsequently to fatty degeneration of, the connective tissue of the retina, and appear striated when this formation and degeneration takes place in the nerve-layers.

CASE XXII. *Nephritic retinitis of right eye. No albumen in the urine.*

S. G., æt. 36, a dwarf, came to Moorfields March 6th, 1865, on account of great loss of sight in the right eye. She could only count fingers with the affected eye, but with the other could read No. 1 J. She has been under medical treatment for disease of the kidneys.

*Ophthalmoscopic examination.*—There is the large yellowish-white mound round the optic disk which is characteristic of nephritic retinitis. It and the retina beyond it are dotted with numerous small hæmorrhages, some in the form of long streaks, others as minute dots; the large retinal veins and somewhat diminished arteries are seen crossing the yellow mound, and the disk is somewhat injected and blurred. There are several large exudations in the neighbourhood of the yellow spot, which are evidently undergoing absorption, as are also some of the blood-extravasations. Others of the blood-spots appear to be recent.

In this case changes had been going on for some time, and no improvement of vision took place, in consequence of the extensive implication of the nerve-tissues of the retina.

CASE XXIII. *Nephritic retinitis of both eyes. Cataracts. Half of left retina detached.*

A lady, æt. about 60, came under my care in May 1866, with very defective vision in both eyes. Her health was much broken down, and her eyes had been failing her nearly two years. She could do little more than count fingers with either eye.

*Ophthalmoscopic examination.*—Numerous striæ existed in both lenses; the inner and lower half of the left retina was detached, and of a dark-grayish colour; the optic disks were whitish, the margins indistinct, the veins tortuous and very numerous, arteries small; large puckered yellowish-white ring round both disks, only half seen, however, in the left eye; the patches extended in irregular promontories towards the equator of the eye, especially beneath the retinal vessels. There were several hæmorrhages in both eyes.

This patient's health was much improved by taking the tincture of the perchloride of iron; and in June the note was: Vision worse in the left eye, somewhat more distinct in the right. The ophthalmoscopical appearances were unaltered, except that the veins were smaller.

CASE XXIV. *Nephritic retinitis of acute form in both eyes.*

G. B., æt. 21, came to the ophthalmic out-patient room of University College Hospital June 21st, 1869. His vision, which had been good ten days since, was considerably affected; he could only read No. 19 J., and at a distance objects appeared shrouded in darkness. He was evidently very ill, pale, cold; feet œdematous; pain across the loins, and other symptoms of kidney-disease. His urine was three-fourths albumen. He was sent to the medical side of the hospital for admission; but as there was not a vacant bed, he was, I believe, sent off to another hospital, and, as far as this record of the case is concerned, was lost sight of. The following, however, is the result of the ophthalmoscopical examination.

*Ophthalmoscopical examination.*—Both eyes were similarly affected. The optic disk is reddish, swollen, and indistinct; veins dark and dilated; retina, throughout the whole posterior portion, swollen and œdematous; large yellowish-white patches around, but at a short distance from the optic disk. In one place the convex edges of two large patches had met. There were no exudations at the yellow spot, but several small hæmorrhages. The appearances were those of a tolerably early period of the disease; and I regret that I had not the opportunity of watching the case.

CASE XXV. *Nephritic retinitis of both eyes; atrophy of retina in left.*

E. B., æt. 44, came under my care September 16th, 1869, on account of loss of sight. She could with the right eye read No. 20 J., but with the left she could not count fingers. She has been subject to œdema of the feet and legs for the last six years, but states that she caught cold about two years ago, and was treated for an affection of the kidneys; and she has ever since more or less suffered from pain in the back. Soon after the attack of kidney-disease commenced, her sight began to become dim, and she began to suffer pain, first in the left eye, later in the right, and in both temples; and the sight has been gradually getting worse until the present condition.

*Ophthalmoscopical examination.*—Left eye: The central segment of the fundus is white with the partially-absorbed mound around the disk; the disk itself being visible only as a bluish-white depression, from which the retinal vessels are seen to emerge. No margin is visible, and the surface of the mound appears to be striated, and might almost be described as puckered. The retina appears to be atrophied. Nearer the equator of the eye are the remains of some hæmorrhages. The vitreous is fairly clear. The arteries are small; the veins normal in size. Right eye: No degeneration of the retina is visible; but there is central hyperæmia and turbidity of the retina, the disk being pink, and also slightly swollen. Just below the disk and beneath the vessels is a large extrava-



sation of blood, of crescentic shape. Its margins are ragged, the clot evidently undergoing absorption. In the equator of the eye, upwards, there is a large round blood-extravasation, also beneath a large vein. In this case the clot appears to be recent, and of dark colour.

Sept. 23d. The urine was examined, and found to contain no albumen. Oct. 14th. She has been taking quinine and iron for three weeks, with advantage to her general health. The vision is "clearer." The clots are undergoing absorption. The left eye is still rather painful. To-day there is a trace of albumen in the urine.

CASE XXVI. *Nephritic retinitis of both eyes. Albumen in the urine.*

E. P., æt. 28, a small spare woman, with the aspect of a subject of Bright's disease, came to Moorfields October 4th, 1869. She has lately been much out of health, and has been losing flesh and strength, and has for the last three months suffered from occasional attacks of pain in the back, especially on the left side. The sight has been getting misty for more than two months, the left eye having been affected before the right. There is no headache. She had a miscarriage six weeks ago, but never had one before. She has menstruated once since, but the quantity was very small. The amount of urine is sometimes very small. The field of vision is normal; reads No. 2 J. with the right eye; No. 6 with the left.

*Ophthalmoscopic examination.*—Left eye: The peculiar grayish-white mound around the optic disk is present to an extent of from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  times the diameter of the disk. The margin of the disk is not distinct, but there is not much swelling of the disk itself. The retina is opaque and swollen by the larger vessels; and along the vessels running over the exudation, and also beyond it, are numerous ecchymoses. There are also several spots of white exudation irregularly placed about the retina. Right eye: Cloudiness of the retina for some distance around the optic disk; venous pulsation on the disk; veins large; numerous brilliant white punctiform exudations below and internal to the yellow spot, some of them arranged as radiating from it. The vitreous is clear in both eyes.

*Treatment.*—Tincture of the perchloride of iron three times a-day. Oct. 14th. The urine is one-sixth albumen. The retinal veins in the right eye are smaller, and the pulsation has disappeared. In the left there are several fresh hæmorrhages. 21st. Health much improved. The exudation in the left eye is nearly all absorbed, except near the disk, and by some of the vessels. In one place a vein seems to be surrounded, and a short portion of it obscured; there are still numerous small dots of hæmorrhage. In the right, the venous pulsation is no longer visible; the retina is clearer, and the white spots radiating round the macula lutea are much more distinctly seen, and appear to be more numerous. There are still numerous hæmorrhages. The vision is No. 4 J. at one foot, for both eyes. Nov. 4th. Her health has very much improved. The albumen diminished in quantity. Exudations have disappeared, except a few small white streaks about the yellow spot in both eyes.

4. Retinitis pigmentosa is characterised by pigment-spots in the retina, which assume the form of bifid streaks, stars, or "bone-corporuscles." These are generally more abundant in the peripheral parts of the retina, and are situated in its inner layers. The most prominent symptoms are night-blindness, from torpidity of the retina rendering it insensible to any but a bright light, and a gradually progressive narrowing of the field of vision. The calibre of the retinal arteries is diminished, limiting the blood-supply. The disease commences during childhood, is often hereditary, and is supposed to be more common in children of parents who were blood-relations, and is often associated with deaf-mutism and deficiency of intellect. The disease nearly always affects both eyes, though not always to the same extent; and gradually but surely advances, to end in atrophy of the retina and optic nerve, the field narrowing more and more, till it is obliterated altogether. Considerable diminution of the field takes place generally before any pigmentary change is visible; but the first pigment-spots that may be seen are situated to the nasal side of the eye, near the equator. The increase of the amblyopia, as a rule, keeps pace with the increase in the number of pigment-spots. The progress is, however, slow, and old age may be reached before the resulting blindness is complete. Atrophy of the epithelial layer of the choroid takes place early in the disease, rendering the choroidal vessels distinctly visible in the neighbourhood of the pigment-spots.

It will be useful to append the above cases in a tabular form (see pp. 140-142).

From these tables we find that the ages of the patients varied as follows: one was  $11\frac{1}{2}$  years old, eleven between 20 and 30, eight from 31 to 40, and five from 41 to 60; showing retinitis to be a disease of early adult life. The proportion of men to women was twelve to fourteen. In eleven, both eyes were affected; in eight, the right only; and in seven, the left only.

With regard to the cause, five cases owed their origin to Bright's disease, sixteen to syphilis, one to posterior

sclerotic staphyloma, one to prolonged straining of the accommodation, one to meningitis, and two were doubtful. Sixteen, if not eighteen, out of twenty-one cases of neuro-retinitis and exudative retinitis were caused by constitutional syphilis. Of these sixteen, hæmorrhages occurred in only four; thus lending support to the fact that they are the exception in syphilitic retinitis. Hæmorrhages occurred, however, in both the cases of doubtful origin. Numerous hæmorrhages were found in all the cases of nephritic retinitis.

*Note.*—Retinitis renders the retina less sensitive to light. When, therefore, photophobia is present with retinitis, it is due to the coexistence of hyperæsthesia of the retina.



*Table of Twenty-six Cases of Retinitis.*

No.	Name.	Age.	Sex.	Eye. Right, left, or both.	Cause.	Duration from first failure of sight to maximum of deterior- ation during the retinitis.	Maximum deterioration of vision during the retinitis.	Hæmorrhages. Serous infiltration. Serous effusion. Exudations.	Result.
1	A. S.	49	F.	Left.	Syphilis and de- ficient food.	3 weeks.	Cannot count fin- gers.	Hæmorrhages.	In 12 days could count fin- gers; but sclerosis and atro- phy followed.
2	M. A. E.	46	F.	Both.	Posterior sclero- tic staphyloma (myopia of $\frac{1}{2}$ ). Recurrence four years after.	.	.	No hæmorrhages.	With -2 AV = $\frac{20}{200}$ ; with -3 $\frac{1}{2}$ left reads No. 1 $\frac{1}{2}$ Sn.; right, No. 2. Could read No. 4 Jæger at the last note. In 6 weeks could read No. 14 Jæger.
3	L. A. L.	23	F.	Right.	Syphilis.	3 months.	Reads N. 10 Jæger with difficulty.	.	
4	J. P.	31	M.	Left.	Doubtful.	.	Could not count fingers, could only perceive bright objects.	Hæmorrhages and serous in- filtration.	
5	Wm. T.	40	M.	Both.	Syphilis.	.	Letters of No. 4 J. with difficulty.	One hæm. Seve- ral small exud.	Reads No. 4 Jæger easily.
6	E. H.	25	F.	Right.	Prolonged strain- ing of the ac- commodation. Syphilis.	34 days.	Letters of No. 20.	Hæmorrhages.	In 8 weeks could read No. 2 Jæger.
7	E. L.	31	F.	Right.	Syphilis.	6 weeks.	Letters of No. 20.	A few minute exudations.	In 3 weeks could read No. 14 Jæger. No farther note.
8	J. S.	30	M.	Left.	Violent pressure upon globe. Syphilis.	14 days.	Could not count fingers.	Serous infl. No hæmorrhages.	In 5 weeks could read No. 2.

9	J. H.	56	M.	Right.	Doubtful.	"Weak" a few days.	No perception of light.	Ser. ef. Hæm. on yellow spot.	No return of perception.
10	C. W. G.	29	M.	Left.	Syphilis.	3 weeks.	3½ Snellen.	Lymph. S. inf. Exud.	Recovered clearness, but not acuteness.
11	A. N.	11½	M.	Both.	Disease of cerebellum. Chr. basilar meningitis, with serous effusion.	3 weeks.	Blind.	Lymph. A few hæmorrhages.	Died.
12	W. B.	37	M.	Both.	Syphilis.	5 weeks.	4 Jæger. AV = $\frac{200}{200}$ .	Exudations.	Slight improvement.
13	E. C.	27	F.	Left.	Cerebral(? syph.)	5 weeks.	Lower and outer half of retina blind; upper and inner counts fingers.	Lymph. S. ef. No hæm.	Lower half of retina blind; upper counts fingers. Hy-peræmia of right disk.
14	D. H.	36	M.	Left.	Blow. Syphilis.	4 months.	No. 10 Jæger.	Minute white exud. No hæm.	No. 10 Jæger.
15	A. H.	24	M.	Right.	Syphilis.	3 or 4 weeks.	4½ Snellen.	No hæm. No exud.	
16	M. A. B.	28	F.	Both.	Syphilis.	.	Perception of light.	Lymph. Numerous hæm. and exud.	Blindness from atrophy of optic nerves, and portions of choroid and retina.
17	M. A. W.	28	F.	Both.	Syphilis.	2 months.	Large letters.	Exud. ands. inf. No hæm.	
18	G. H.	28	M.	Right.	Syphilis.	.	Inner $\frac{2}{3}$ of field counts fingers.	Exudations.	Slight atrophy of disk; patches of atrophied choroid.
19	H. T.	28	M.	Right.	Syphilis.	.	Counts fingers at 2 ft.; field narrowed peripherally.	Hæm. and exud.	Choroiditis, hypermetropia, and pigmentary degeneration.
20	S. M.	36	F.	Both.	Syphilis.	A few weeks.	Reads No. 16 J. at 1 ft.; and 200 Sn. at 20 ft.	Striated exud. No hæm.	In 1 month could read No. 1 Jæger with weak convex glasses + 24. AV. = $\frac{20}{20}$ .

*Table of Twenty-six Cases of Retinitis (continued).*

No.	Name.	Age.	Sex.	Eye. Right, left, or both.	Cause.	Duration from first failure of sight to maximum of deterio- ration during the retinitis.	Maximum deterioration of vision during the retinitis.	Hæmorrhages. Serous infiltration. Serous effusion. Exudations.	Result.
21	H. R.	32	F.	Left.	Syphilis (?).	.	Counts fingers.	Large round ex- ud. No hæm.	Useful vision; patches of atrophied choroid.
22	S. G.	36	F.	Right.	Kidney-disease.	.	Counts fingers.	Large exud. Nu- merous hæm.	No improvement.
23	Mrs. M.	60	F.	Both.	Bright's disease.	.	Counts fingers.	Large exud. Nu- merous hæm.	Detached retina and atrophy.
24	G. B.	21	M.	Both.	Nephritis.	10 days.	Could read 19 J.	Large exud. Nu- merous hæm.	Atrophy.
25	E. B.	44	F.	Both.	Kidney-disease.	.	Right reads 20 J., left cannot count fingers.	Large hæm. and exud.	
26	E. P.	28	F.	Both.	Bright's disease.	2 months.	Right reads 2 Jæg., left reads 6 Jæg.	Large exud. Nu- merous hæm.	Great improvement.

GEORGE COWELL.



## IX. ON CHRONIC BONE- AND JOINT-DISEASE.

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It is always to be regretted that in any scientific nomenclature there should exist a term the meaning of which is undefined; and the more so, if the term is one of frequent use. But although there are few adjectives more often applied to cases of disease by surgeons than that of 'scrofulous,' there are few pathological names of which the meaning is more uncertain. I cannot say that the definition supplied in the nomenclature of diseases recently issued by the College of Physicians, appears much to clear up this obscurity; for scrofula is there defined as "a constitutional disease, resulting *either* in the deposit of tubercle, *or* in specific forms of inflammation *or* ulceration."

But the question whether a definite case of disease will result in the deposition of tubercle or not, is surely one of the utmost importance; the answer to which would enormously influence our view of the nature, prognosis, and treatment of the case. It is this which gives the interest to the question, whether the numerous cases of chronic bone- and joint-disease which we are so constantly called upon to treat, are manifestations of the same disease which results in tuberculosis, or of some other disease, or are simply local affections; whether we are to look upon them as local manifestations of a general disease, and associate them in our minds with tubercular meningitis, tabes mesenterica, and pulmonary phthisis; or as manifestations of a disease different to this; or as local diseases confined to a particular bone or joint. And this is left undecided when, according to the authorised nomenclature, we apply to them the name 'scrofulous.' This is not a mere matter of words—a question whether we shall call certain diseased bones or joints by the name

of scrofula, or by some other; because words are, or ought to be, the equivalents of ideas; and in accordance with the ideas which we hold of these cases will be the treatment we shall apply to them. It will be my endeavour in this paper to contribute something to the solution of this difficulty.

This subject has, no doubt, been hitherto much complicated by the obscurity of our ideas of the nature of tubercle; and although much light has been thrown upon this by the recent researches of Virchow, Villemin, Sanderson, and others, it must be admitted that our knowledge of it is still far from complete. I cannot but think that our progress in this matter has been retarded by the investigators viewing it too strictly in either a pathological or clinical light, and that it will only be correctly understood by viewing it in both these aspects. I suppose that no one who has watched the progress of a case of tubercular meningitis, or looked at the membranes of the brain studded with miliary granules, has any doubt that he has witnessed a perfectly definite disease, and its specific origin. Yet if he saw only the restless or comatose child, with its irregular pulse and respiration, retracted abdomen, emaciation, and squint, and knew nothing of the pathology of acute hydrocephalus, he would be ill able to reconcile or interpret the symptoms; or if, on the other hand, he looked only, after death, at the minute granules in the various organs, or saw under the microscope some granular detritus and fat-cells, or a simple hyperplasia of cell-elements in the connective tissue around certain vessels, he would form a very imperfect notion of the disease with which they had been connected. But seen together, illustrating and correcting each other, they are both intelligible. And so it seems to me that, if we would obtain a clear idea of the nature and affinities of tubercle, we must study it, not only anatomically and pathologically, in the dead-house and under the microscope, but clinically and as it manifests itself by its effects upon our patients. If we take Virchow's description of tubercle, clear and accurate as I believe it is, and apply it to definite cases, we shall find it very difficult sometimes to draw the line

between tubercle, and inflammation or hypertrophy; but if we add to this a clinical description of the disease tuberculosis, we shall have, I think, a really clear idea of this morbid product and its effects. It cannot be too often insisted upon, especially in the present day, that disease can only be seen, and therefore studied, in the *living* subject; that post mortem we only see the causes and effects of disease. Looked at in this way, it seems to me that the recent researches into the inoculability and artificial production of tubercle become far more intelligible and significant; for before deciding finally that an inoculated animal has become tubercular, we should know something of the clinical history of tuberculosis in that animal when occurring without artificial stimuli. And in considering the experiments in which tubercle appears to have been produced by the introduction of setons, putrid muscle, &c., the difficulty of distinguishing inflammatory products from tubercle, both in their early and degenerate condition, must be remembered; as also the intimate connection of the connective tissue and lymphatic system, which would lead us to expect that inoculated morbid materials would develop their effects in the same parts that tubercle affects. And it should not be forgotten that Hérard,\* and also Lebert and Wyss,† obtained very different results by the inoculation of tubercle, from those produced by the introduction of inflammatory and other matters; and that, whatever may be the effect of subcutaneous irritation in rodents, the same effects do not follow in man.

All morbid formations of a caseous nature found in the body used once to be called tubercular; but we now know that these have no necessary connection with tubercle, but are degenerate products, which may have had various origins. It would lessen confusion, therefore, if for the future we ceased to call these tubercle. No doubt cheesy masses may be found in the lungs and other organs of tubercular subjects (*i. e.* tubercular subjects are not exempt from them); but even then they

\* Hérard, *Archiv. Gén. de Méd.* July 1867.

† Lebert and Wyss, *Virch. Archiv.* 1867. See also, for a general outline of this subject, an article in the *Med.-Chir. Rev.* vol. xlii. p. 26.



have often nothing to do with the tubercle, but are the result of chronic inflammation occurring in a person who is tubercular, and independently of the tubercle; while more rarely they may be the degenerate products of an inflammation which the tubercle has set up; or, again, they may themselves act as foreign bodies, and thus set up a second inflammation.\* The inflammation set up by tubercle, however, is mostly acute, and these cheesy masses are mostly of a chronic origin.

But there is a condition with which these cheesy matters are far more often associated than with tuberculosis; namely, that diathesis which is so prone to chronic inflammations of all kinds—of mucous membranes and skin, of the lymphatic system, of the bones—and to which I believe the name of ‘scrofula’ should be exclusively confined. And of this, again, I would urge that we should take a clinical as well as pathological view; and if this is done, I think no one who has seen much of children’s diseases will deny the occurrence of so constant and frequent an association of such chronic inflammations, as will warrant us in regarding the condition as a distinct disease. No doubt it would be difficult to define scrofula pathologically, but so it would be chorea or ague; clinically, I think it is easy of recognition. For a clinical description of scrofula, and its differences from tuberculosis, I need only refer to Jenner’s well-known Lectures (*Med. Times*, 1860); and the two marked characteristics of the disease have been well described by Virchow as ‘vulnerability’ and ‘pertinacy.’† Scrofula then, I think, for practical purposes, might be defined as a disease which manifests itself by a peculiar vulnerability and proneness of the subject to chronic inflammations of the mucous membranes and skin, lymphatic system, and bones; which inflammations are characterised by great pertinacity, and the products of which have a retrograde tendency.

It is a disease quite distinct from tuberculosis, though not, I believe, antagonistic to, nor incompatible with, it;

\* See Paget on “Residual Abscesses,” *St. Barth. Hosp. Rep.* vol. v. p. 73.

† Virchow, *Die Krankhaften Geschwülste*, b. ii. h. ii. pp. 587, 603. See also Paget *Lect. on Surg. Path.* p. 821, ed. 1863; *Med.-Chir. Rev.* vol. xlii. p. 31.

for the chronic inflammations called scrofulous often exist for years without any tubercle being found in the subject of them; while, on the other hand, we see innumerable cases of tubercle, without a sign of any such chronic affections. Scrofula too is a disease principally of early life, and tends to wear itself out, and, under improved hygienic conditions and appropriate remedies, to disappear as the child gets older, though of course its effects may remain through life. Hunter says,\* “puberty often produces a cure.”

It is with this disease that the cheesy matters before alluded to are most frequently found. Cases of chronic inflammation of the bronchial and intestinal mucous membrane are seen, for instance, where a great part of the lung is converted into this cheesy substance, the lymphatic glands into masses of the same material, and in which not a particle of tubercle is found in the entire body.† With this disease, also, no doubt some of the chronic cases of bone- and joint-disease are associated, especially those in which the inflammatory products become of a caseous nature (the so-called ‘tubercle’ or ‘scrofula’ in bone); and such cases, when combined with other signs of scrofula (*e.g.* chronic pulmonary, nasal, or intestinal catarrh, ophthalmia, persisting skin-affections, &c.), may fairly be called ‘scrofulous.’‡ But the greater number of cases of chronic bone- and joint-disease are quite unconnected with any of the other signs of scrofula (having neither the general appearance nor the pathological tendencies described by Jenner), so that it is not possible, with any correctness, to class them among scrofulous affections; while the rarity with which they are associated with any

\* *Works*, by Palmer, vol. i. p. 601.

† See *Med.-Chir. Rev.* vol. xlii. p. 32 note; and Graves’ *Clin. Med.* lects. 23 and 37; also Virch. *op. cit.* p. 601.

‡ For instance, such a case as this: Sarah S., æt. 9, when eight months old was attacked with an obstinate skin-eruption, which lasted many months; at five years old, tibia became painful and swelled; when six years old, elbow did the same; at seven and a half years, nodes formed on forehead, and subsequently burst and discharged thin matter. The disease of all these bones has persisted ever since. She is very liable to pulmonary and intestinal catarrh. No signs of syphilis or tubercle; no history of injury. Parents healthy. Five other children; one has knee-disease; the rest healthy.

formation of tubercle equally removes them from the class of tubercular diseases. In fact, I was surprised, on looking over my notes of a large number of these cases, to find how frequently I came across the note, "Health good; no sign of tubercle or scrofula."

These assertions are based upon the following facts:

Of 134 cases of chronic bone- and joint-disease, of which I took notes in the Hospital for Sick Children, in only 9 was there any sign of tuberculosis; and but 17 displayed other signs of scrofula; in 24, some member of the family was said to have died, or to be suffering from, phthisis, but the child itself presented no sign of the disease;\* in 22 only could any history of injury be elicited.†

Some farther details relating to this subject are given in an analysis of these cases (see p. 152).

Of 85 consecutive cases admitted into the Hospital for Sick Children for various tubercular affections, in only 1 was there any bone- or joint-disease.

From the post-mortem books of the same hospital I have collected all the cases in which tubercle was found in any organ; these were 146 in number, and in only 8 was there any bone- or joint-disease found: viz. of spine, 1 case; of hip, 3 cases; of spine and hip, 1 case; of knee, 2 cases; of tibia, 1 case.

In the former volumes of these *Reports* will be found a record of 790 cases of bone- and joint-disease‡ admitted into St. George's Hospital during the last three years.

\* These figures are probably too high, because for the family history, I had to depend upon the information furnished by the friends of the child; and the poor are peculiarly prone to designate all chest-diseases and obscure affections 'consumption;' but I endeavoured as far as I could to exclude error.

† The rough life which the children of the poor lead, the very small amount of supervision which they obtain, and the unwillingness of the parents to admit injuries which are often due to their own violence or carelessness, must be remembered in connection with these figures, which are doubtless much too low. I admitted no injury unless it could clearly be connected with the disease; but the history to be obtained of many children of the poor is exceedingly meagre and unsatisfactory. The following not very exceptional one I copy from my notes: "Family history: mother dead; father a drunkard." Such a negative history as this would not, I presume, render improbable an injury to some of the child's joints.

‡ This does not include cases of rickets, tumours, rheumatism, or periostitis.



Of these cases, it is noted that in 80 they were associated with disease in other parts. Now allowing that, in all probability, in the greater number of these the associated disease was phthisis, still we have this association in only 10 per cent. And the post-mortem books of St. George's Hospital for the same period furnish 122 cases in which tubercle was found in some organ; of these, only 15 were associated with bone- or joint-disease: viz. of spine, 4 cases; of hip, 3 cases; of knee, 6 cases; of sacro-iliac, 1 case; of pelvis, 1 case.

But, besides these facts, there are other reasons for believing that the majority of these cases are neither tubercular nor scrofulous in origin. For instance, if they were tubercular, should we not expect that in some cases of acute tuberculosis we should find some sign of tubercle in the bones? Yet one looks in vain for the slightest sign of anything of the kind, even in cases where almost every organ is stuffed with miliary tubercles. A boy, lately in the Hospital, was attacked with acute tuberculosis while under treatment for disease of the knee-joint. He died of meningitis, and almost every organ in the body contained miliary tubercle; but the most careful examination failed to detect anything like tubercle in the bone, whereas the bones of the knee-joint presented typical specimens of the results of ordinary inflammation. In this case, too, the disease of the knee was long antecedent to any sign of tuberculosis, which, in fact, was obviously quite recent. I am not prepared to assert that tubercle never occurs in bone; but I have never seen a miliary tubercle, such as we find in the lungs and other organs, in bone; and I confess myself unable to distinguish in what Virchow's description of tuberculosis in bone differs from that of ordinary inflammation.\*

If, on the other hand, these cases were usually connected with scrofula, should we find the operations upon these cases so successful? Should we find two large surfaces of bone, such as are exposed in an excision of the knee, healing together, if there existed a disease in which

\* Virch. op. cit. p. 707.

the bones were peculiarly liable to a low form of inflammation?\*

There are some cases, however, of chronic bone- and joint-disease (but, as seen from the table given below, quite a small minority) which are the result of scrofula; and it is in these, as I have said, that we mostly find the caseous infiltrations and masses which have often been called tubercle. That they are not of that nature seems to me evident: first, because it is so exceedingly rare to find them associated with tubercle in other organs; secondly, because they are always preceded by chronic inflammation; thirdly, because it is frequently possible in the same bone to trace the gradual change through all its stages of the ordinary products of chronic inflammation to a thoroughly caseous material; and fourthly, because these changes are precisely what take place in inflammatory products in other organs, independently of tubercle. Stanley, when writing of "scrofula in bone," says that "the tuberculous matter excites suppuration in the surrounding osseous tissue, just as tubercle in lung or in absorbent gland gives rise to abscess in the healthy tissue around it."† Yet he says,‡ "When an examination is made of scrofulous bones in the early stage of disease, they are found expanded and congested, the medulla in their cells being mixed with blood. How long this stage of scrofulous disease in bone will endure, cannot be definitely stated. It is, however, certain, that it may continue many months; for in instances where disease in a joint had so long continued, with all the features of scrofula, yet on examining the joint no other morbid changes were found in it than the simple inflammatory condition of its bones."

\* Mr. Holmes has expressed a similar opinion in his book on the *Surgical Diseases of Children* (1st ed.), p. 337, and also at p. 425, where he more fully discusses the question, and gives an account of the sequel in some cases of excision and amputation. Of fifteen cases of whom exact accounts were obtained, in periods varying from five to one and a half years after the operation, only two had any recurrence of bone-disease; one had a superficial abscess; and the rest were well. Five other cases were believed to remain well. Mr. Holmes also suggests whether the local disease may not often cause the constitutional.

† *Diseases of Bones*, p. 248.

‡ *Op. cit.* p. 246.

And since my attention has been directed to this subject, I have frequently observed, on making a section of a so-called scrofulous bone, the most perfect gradations, from slightly-expanded and vascular cancelli with an increase of moisture, through an increased softness of the bone and a gelatinous infiltration of its cells, to an inspissated and cheesy condition of this infiltration. Stanley says,\* “More frequently, when tuberculous deposit is found in the bones of one joint, the primary changes from scrofula not yet advanced to the tuberculous stage are found in other bones; thus, for instance, in a limb removed on account of disease in the knee-joint accompanied by tuberculous deposit in its bones, the bones of the ankle-joint are often found softened, slightly expanded, with their cancellous texture excessively vascular, and its cells filled by a serous and bloody fluid.” And these changes are what occur in other organs, independently of tubercle; and are just what we should expect when we remember that scrofula implies a degraded constitution, and that its inflammations are characterised by their chronic nature, and by products of a retrograde tendency. These caseous matters in bone are, in fact, precisely similar to those found in the glands or lungs in a case of scrofulous pneumonia, in which not a particle of tubercle is found.†

Into the causes of scrofula I do not intend here to enter. I would only notice, in passing, a very suggestive remark of Mr. Simon, in his well-known article on inflammation,‡ where, after speaking of sea-scurvy, he asks whether these scrofulous affections “may perhaps depend, not generally on the deficient bellyful of food, but distinctively on the absence or insufficiency of one or two chemical elements.” It should, however, always be remembered, in treating scrofula, that under improved hygienic conditions and appropriate remedies it tends to a cure, and that, as Hunter says, “puberty often produces a cure” (a marked contrast to tuberculosis); so that if we remove the effects of the disease, we may fairly hope that, under appropriate treatment, the patient will remain free from a recurrence.

\* Op. cit. p. 250.

† See note, p. 147.

‡ Holmes' *System of Surgery*, vol. i. p. 64.



# *Analysis of 134 Cases of Chronic Bone- and Joint-disease.*

Part affected.	If history of injury.	If other signs of scrofula.	If any sign of tubercle.	If any history of tubercle in family.*	Number of cases.	Total.
Spine . . . . .	No .	No .	No .	No . . . . .	3	5
" . . . . .	No .	Yes.	No .	No . . . . .	1	
" . . . . .	No .	No .	Yes.	No . . . . .	1	
Elbow . . . . .	No .	No .	No .	No . . . . .	4	
" . . . . .	No .	Yes.	No .	No . . . . .	3	
" . . . . .	Yes.	No .	No .	No . . . . .	3	12
" . . . . .	Yes.	Yes.	Yes.	Father and brother d.	1	
" . . . . .	No .	No .	No .	Mother's family .	1	
Hip . . . . .	No .	No .	No .	No . . . . .	28	
" . . . . .	No .	Yes.	No .	No . . . . .	3	
" . . . . .	Yes.	Yes.	No .	No . . . . .	1	46
" . . . . .	Yes.	No .	No .	No . . . . .	6	
" . . . . .	Yes.	No .	No .	Father's family .	1	
" . . . . .	No .	No .	Yes.	No . . . . .	3	
" . . . . .	No .	No .	No .	Mother's family, 1; aunt, 1; father d. 1; mother d. 1 .	4	
Knee . . . . .	No .	No .	No .	No . . . . .	15	32
" . . . . .	No .	Yes.	No .	No . . . . .	3	
" . . . . .	Yes.	No .	No .	No . . . . .	3	
" . . . . .	Yes.	No .	No .	Father's family .	1	
" . . . . .	No .	No .	No .	Father d. 3; mother d. 3; both parents, 1; 2 brothers d. 1; father, 1; father's family, 1	10	
Ankle . . . . .	No .	No .	No .	No . . . . .	3	5
" . . . . .	Yes.	No .	No .	No . . . . .	1	
" . . . . .	No .	No .	Yes.	Both parents; brother d.	1	
Tarsus . . . . .	No .	No .	No .	No . . . . .	2	4
" . . . . .	Yes.	No .	No .	No . . . . .	2	
Metatarsus. . . . .	No .	No .	No .	No . . . . .	1	3
" . . . . .	No .	Yes.	No .	No . . . . .	1	
" . . . . .	No .	No .	Yes.	2 brothers d.	1	
Knee and ankle . . . . .	No .	No .	No .	Father d.; 7 healthy children	1	1
Knee and spine . . . . .	No .	No .	No .	Grandmother d. . . . .	1	1
Elbow and ankle . . . . .	No .	No .	No .	No . . . . .	1	1
Elbow and femur . . . . .	Yes.	No .	No .	No . . . . .	1	1
Frontal bone . . . . .	No .	Yes.	No .	No . . . . .	1	2
" " . . . . .	Yes.	No .	No .	No . . . . .	1	
Femur . . . . .	No .	No .	No .	No . . . . .	3	5
" . . . . .	No .	Yes.	Yes.	Brother d. . . . .	1	
" . . . . .	No .	No .	No .	Mother . . . . .	1	
Tibia . . . . .	No .	No .	No .	No . . . . .	5	7
" . . . . .	Yes.	No .	No .	No . . . . .	1	
" . . . . .	Yes.	No .	No .	Mother d. . . . .	1	
Tibia and femur . . . . .	No .	Yes.	No .	Brother . . . . .	1	1
Fibula . . . . .	No .	No .	No .	Father . . . . .	1	1
Calcaneum . . . . .	No .	No .	Yes.	Mother; 3 sisters d. . . . .	1	2
" . . . . .	No .	No .	No .	No . . . . .	1	
Astragalus . . . . .	No .	No .	No .	No . . . . .	2	3
" . . . . .	No .	No .	No .	Mother d. . . . .	1	
Several bones . . . . .	No .	Yes.	No .	No . . . . .	1	2
" " . . . . .	No .	No .	No .	No . . . . .	1	
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\* The letter d., after the relation named, signifies that the person named is said to have died of phthisis.

J. WARRINGTON HAWARD.

## X. THE CAUSES OF PULMONARY CONSUMPTION.\*



THE causes of pulmonary consumption form an ample subject for discussion, and are of great interest to all classes of society, especially in this land, where the ravages of that disease are only too well known, and, indeed, too widely spread. It is not my intention, however, to give a detailed account of all the known causes of consumption; but rather to sketch the principal ones, attaching to each its due value and importance, and drawing attention to certain fertile sources that seem to me not to have hitherto received their fair share of notice. In this essay, the term ‘pulmonary consumption,’ or ‘phthisis,’ is used in a clinical sense, and by no means restricted to only tubercular disease; but is intended to include all pathological conditions of the lungs accompanied by a certain well-known and well-marked group of symptoms, *e.g.* cough, hæmoptysis, wasting, &c.

The recent experiments on the artificial production of tubercle in animals have undoubtedly thrown light, not only on the nature of that material, but also on its origin. They point, however, to conclusions far different from what the originators intended, and, instead of limiting the origin of consumption, they have widened it, and placed it on a broader basis. Begun with a view to establish the *specific* nature of the disease, and its similarity to inoculable poisons, they have ended in clearly showing its *non-specific* nature, and in demonstrating that a product whose presence in the system is the starting-point of well-known and well-marked changes can have its origin in causes as numerous as they are different. The series of experiments alluded to were performed by Villemin, Lebert, Andrew Clark, Simon, Marcet, Sanderson, and Wilson Fox, on rodents; and while it was shown that tubercular

\* Read as a dissertation for the degree of Doctor of Medicine before the University of Oxford, May 1869.

deposits might be produced by the inoculation of gray or yellow tubercle, it was also proved that similar deposits might be produced by various other substances, including pus, putrid muscle, and cotton thread, inserted under the skin. Experiments on other animals do not seem to have been equally successful;\* but one or more cases that I am going to relate incline me to think, that under favourable circumstances tubercle may be produced in the human being by irritation.

The principal causes of pulmonary consumption may be classed as follows :

1. *General causes*, which, by their weakening influence on the constitution *generally*, predispose to consumption: such are hereditary predisposition, want of pure air and good food, typhus and typhoid fevers, scarlatina, measles, cessation of discharges, termination of pregnancy and lactation, mental depression, damp.

2. *Local causes*, the effects of which are limited at first to the lungs, but may at a later date extend to the system. These are: attacks of bronchitis and whooping-cough; attacks of pleurisy and pneumonia; attacks of asthma; trades and occupations giving rise to a dusty or gritty atmosphere; injuries.

Such are the principal causes of pulmonary consumption; and they may act either as predisposing or exciting causes of the disease. Insufficient food and severe fevers, by impoverishing the blood, and interfering with the nutrition of the body, may predispose to consumption. On the other hand, in a case of well-marked hereditary predisposition, they may excite the hitherto latent malady. Some of the local causes may act as directly exciting causes, by giving rise to irritation and a low form of inflammation, the products of which would tend to disintegration.

Let us first direct our attention to *hereditary predisposition*—one of the most acknowledged causes of the disease. This undoubtedly exercises a great influence in the causation of consumption; but on the *degree* and *importance* of

\* M. Chauveau of Lyons has lately produced tuberculosis in cattle by mixing small quantities of tubercle with their food.



such influence authorities greatly vary. The first *Brompton Consumption Hospital Report* states, that out of 1010 cases, 246, or 24·4 per cent, traced hereditary disease. Dr. Pollock\* found in his 1200 hospital cases that 30·16 per cent were thus affected. Dr. Fuller,† who took great pains to arrive at accurate conclusions, in 385 cases of hospital and private practice found, that counting consumptive grand parents, uncles, and aunts, on both sides, the proportion was 229, or 59·5 per cent; but that only 99, or 25·7 per cent, had consumptive parents. In 800 cases selected from the private practice of Dr. C. J. B. Williams, on the ground of *each patient having been at least one year under observation*, I found that the existence of consumption among relatives had been traced in 385 instances, or in 48·12 per cent of the whole number. These patients were all closely questioned as to their dead and living relations. In many instances, the existence of consumption in the family was at first denied; but after cross-questioning, not only was its existence admitted, but undoubted cases of death from that disease were traced among their relatives. The above percentage of 48·12 cannot be said to be calculated from conditions exactly corresponding with those of the authors quoted, as the majority of my cases were those of chronic consumption, lasting under treatment from two to forty years, and among whom the average duration of life was between eight and nine years. Moreover, hereditary disease was taken in a very broad sense of the term, and included all blood-relations; as, for instance, those of the same generation—brothers, sisters, first-cousins—in addition to parents, uncles, and aunts on both sides, and grandparents; the principle being, to accept as instances of disease in the family all relations derivable from a common stock. We shall not be far from the mark, therefore, if we consider hereditary disease to exist in half the cases of pulmonary consumption, and to exercise an important influence over the course of that malady. This influence does more than simply predispose; in many instances it

\* *Elements of Prognosis in Consumption.*

† *Diseases of the Chest.*

determines the *variety* of the disease, and also the *lung affected*. When the father has had the hæmorrhagic variety of consumption, characterised by frequent and profuse attacks of hæmoptysis, and rather scanty evidence of consolidation, it is not uncommon for the son also to be affected with the same form of disease, and commencing at about the same age. Again, the *seat* of the disease is often thus determined. If the parent has had one lung affected, the disease not uncommonly attacks the same one in the child; and among the children themselves the seat of the disease is likely to be similar. Unfavourable as the aspect is which strong hereditary predisposition gives to a case, even its strongest forms do not render a case absolutely hopeless. I have known consumptive patients who have lost both parents, and one or more brothers and sisters, from the disease, and yet, under careful treatment, have survived for many years, and attained a fair degree of health.

In the following case the predisposition was very strong :

A lady, æt. 34, consulted Dr. Williams June 20, 1859. She had lost her father, mother, and ten brothers and sisters, from consumption, and had herself been always liable to cough, which had remained constant since December. Three years previously she had hæmoptysis, amounting to 3ss.; and at the time of her visit the expectoration was streaked with blood. She had lost much flesh and strength, complained of pain in her chest, and stated that the catamenia were irregular and deficient. Physical signs: dulness and tubular sounds in the upper part of both sides of chest, most marked on the right, where there was some crepitation. Ordered cod-liver oil, in a mixture of hydrocyanic and phosphoric acids, with infusion of calumbo and orange; counter-irritation with acetum cantharidis; and a linctus containing morphia. May 21st, 1860. Greatly improved under the above treatment, and has grown stout. Has hardly any cough or expectoration, but lately suffers from oppression of breathing and frequent boils. Ordered oil, in a mixture of chlorate of potash, nitric acid, and glycerine. July 30th, 1861. Continued to improve till the winter, when she had inflammation of the lung; and since the attack the expectoration has been sometimes gritty, and sometimes fetid. Patient's breath is short; but she feels stronger, and has taken oil regularly, combined with strychnia. Physical signs: dulness; tubular sounds in upper left back and right front. April 19th, 1866. Wintered in Cornwall, and out a great deal in the open air; but stomach weak, and lately has not been taking much oil. Has lost much flesh, but cough and expectoration are less. Last winter

they were increased, and there was some hæmoptysis. Physical signs: dulness, large tubular sounds upper right chest.

In this case the gritty expectoration, the improvement in general health and physical signs at the end of two years' treatment, showed that the very strong hereditary predisposition did not obstruct or even retard the patient's progress, which, if the oil, &c. had been continued regularly, and no fresh attack of the disease had occurred, would probably have ended in her recovery. As it was, she made great progress at first; and at the end of seven years from her first visit to Dr. Williams, and ten from her first symptoms, her state was only a little worse than when first seen.

*Impure air and improper food* are well-known general causes of consumption. Among the lower classes in crowded cities, evidence of their effects is only too common. Of 3214 men who became in-patients of the Brompton Hospital in ten years, 1812 (more than half) had indoor employments. Among my own out-patients, the numbers of those who ply their trade in close, ill-ventilated rooms, and during long hours, are very great: clerks, compositors, tailors, shoemakers, among men, and milliners, dressmakers, among women, are attacked at an early age.

Want of proper food acts by impoverishing the blood and lymph, whether the fault lies in the quality or quantity of food. If healthy pabulum be not supplied for nutrition of tissue, it is impossible for it to retain its normal standard; it starves, and the pabulum not good enough for the tissue will go to form morbid material. Instances of this predisposing cause can be seen in the poorly-fed children who attend at the Brompton Hospital, and in whom a very slight exciting cause brings on the consumptive disease.

*Typhus and typhoid fevers.*—Of these, typhus is the least powerful cause, though it exercises some influence; but many cases of consumption are to be traced to an attack of typhoid or pythogenic fever. Dr. Murchison says, "an attack of pythogenic fever is often followed by tubercular deposit in the lungs." And again, "in my



experience, acute tuberculosis of the lungs is a far more common complication or sequela of pythogenic fever than of typhus; and it is intelligible why this is the case, when we recollect the more protracted duration of the former malady and the greater emaciation it entails. Louis records four fatal cases of pythogenic fever, in which the lungs were found studded with recent tubercles. Bartlett also observes, that consumption is a common sequela of this fever in America.\* I have notes of several cases arising from this cause; but hereditary predisposition was present in most of them. In the subjoined instance, symptoms of consumption followed closely after the attack of fever, and the physical signs revealed an extensive amount of disease.

A young lady, æt. 15, consulted Dr. Williams, October 3d, 1858. The father's family were consumptive. She had had typhoid fever in June, which had left her greatly reduced, and with a cough. In August she went to the sea, and, taking cod-liver oil, greatly improved. The physical signs were: decided dulness, large tubular sounds in the upper part of left chest, and croaky crepitation throughout the whole lung; tubular sounds above right scapula. Oct. 16th, 1862. Took oil and used counter-irritation steadily for two years. Quite lost cough, and greatly improved. In 1861 passed several worms. Catamenia had stopped six months, but now are regular. Appetite is bad, and the patient is now losing flesh and strength again. Oil has been left off two years. Physical signs are improved. Tubular sounds and crepitation audible only in upper left chest.

It is worthy of notice, that the organs so commonly affected in typhoid fever—viz. the solitary glands, Peyer's patches, and the mesenteric glands—are also frequently the seat of tubercular disease. The wasting too which accompanies both these diseases seems to be connected with a disordered state of the lymphatic system, particularly of the lacteals. Whilst we know that the organs attacked by typhoid fever and the intestinal form of consumption are portions of the lymphatic system, the recent researches of Sanderson† and Wilson Fox‡ tend to show in the pulmonary form of consumption too, that the lymphatics are

\* *Treatise on Continued Fevers*, p. 503.

† *Reports of the Medical Officer for the Privy Council for 1867* (1868).

‡ Lecture at the Royal College of Physicians.

the seat of the disease, and that the principal morbid changes take place in and around them.

*Scarlatina* predisposes to consumption, as may be seen in the annexed case, in which there was no hereditary predisposition. There had been an attack of typhus some years previously, but the patient's symptoms dated from the scarlatina.

A medical man, æt. 30, first consulted Dr. Williams November 23d, 1847. A few years before had typhus fever, and two years ago scarlatina, since which has been delicate and losing flesh. Has had cough six months, increasing during last two, with much loss of flesh and strength, and two days ago expectorated several ounces of blood, and has not stopped spitting blood yet. Physical signs: Dulness, tubular breath in upper left chest, front and back; crepitation above left scapula. He was cupped to 3viiij., and ordered to take acid acetate of lead throughout the day, and every morning a draught of sulphate of magnesia and sulphuric acid. The hæmoptysis soon ceased. July 1848. Wintered at Torquay, taking cod-liver oil, and improved so rapidly, that he was apparently well in three months, but then had an attack of lithic nephralgia. In May expectorated calcareous matter, about the size of a barley-corn. No cough at present; but breath short, slight dulness and deficient breath in upper left. Tubular expiration upper right. 1849. Wintered in Madeira, when he had dangerous bronchitis, and ever since some cough. Still dulness and deficient breath in upper left chest. Jan. 21st, 1858. Spent three years voyaging to and from India, and entirely lost cough. Last three years settled in South Devon, and enjoyed good health, except shortness of breath, till a fortnight ago, when, after a cold, cough returned, with tinged expectoration. Some dulness and tubular breath in both scapular regions; but chest otherwise healthy. Has not been seen since; but was heard of as well and active in 1867, twenty years after his first visit, and twenty years and a half after the first symptoms of chest-disease.

*Measles* is a very common cause of consumption, chiefly in children. Acting generally, it exhausts the patient, and leaves him an easy prey to the first exciting cause that comes. Acting locally on the lungs, it leaves them maimed by its sequelæ, bronchitis, and inflammation, and therefore with a tendency to become the seat of tubercle. The following is an example of its general action in the adult:

A gentleman, æt. 35, consulted Dr. W., July 22d, 1857. Eighteen months ago he had measles, and ever since cough, with yellow expectoration. His breath was short; but he had gained flesh. His ankles swelled, and he had arcus senilis. Physical signs: Dulness upper left, front and back. Tubular sounds above both scapulæ. Crepitation in

parts. Oct. 3d. Under iodide of potassium, cod-liver oil, and strychnia he improved; but cough was still troublesome. Wintered at Falmouth, and out daily, when stomach sickened, and oil was discontinued. Physical signs: Rather worse dulness; mucous rhonchus; obstruction sounds audible over whole left side; tubular sounds in upper portions.

The *cessation of habitual discharges*, as those from fistulæ in ano and old ulcers, will sometimes give rise to symptoms of consumption, which often diminish on the discharge being reëstablished. In fistula this is so marked, that many physicians refuse to sanction, and many surgeons to perform, operations for fistula on patients who have shown evidence of tuberculous disease of the lungs.

The following case shows how beneficial to a patient of intemperate habits a discharging ulcer was, and how, after it healed, she suffered from epistaxis and hæmoptysis; how eventually there appeared decided signs of softening in the left lung, and of disease in the right.

A woman, æt. 50, was first seen by Dr. Williams January 21st, 1859. She had formerly been cook, and indulged in stimulants to such an extent, that she had delirium tremens several times. Of late years had been taking opium. For many years had an ulcer in the leg, which closed two years ago, and since that time had been subject to occasional and profuse epistaxis, requiring on one occasion plugging of the nostrils. In last two months cough had come on, and last week hæmoptysis amounting to 3ij. Physical signs: Obstruction and mucous rhonchus in right scapular region. Liver was found reaching low down, and was tender on palpation. Patient was ordered a tonic of nitric acid and strychnia, to be followed by cod-liver oil. Feb. 5th, 1862. Has had cough ever since; much increased in last three months. Can't take the oil. Physical signs worse. Large tubular sounds above right scapula. Dulness and coarse crepitation above left scapula.

The *termination of pregnancy and lactation* is stated by some observers to predispose to consumption. I have seen some instances of the action of this cause among the poor; but unfortunately I cannot find a case in which other causes were not also in operation.

*Mental depression.*—Some doubts have been expressed by authors as to this exerting any influence in the causation of consumption. When mental depression arises from any great loss, whether of relatives, friends, or property, it is often followed by irregular habits. Food is not taken regularly, nor in sufficient quantity; and, on the other



hand, stimulants are often taken too freely. In these cases, it is doubtful whether we ought to assign as the cause the mental depression, or the irregular living accompanying it. Laennec gives an interesting instance of the effect of mental depression.

“I had under my own eyes,” says he, “during a period of ten years, a striking example of the effect of the depressing passions in producing phthisis, in the case of a religious association of women of recent foundation, and which never obtained from the ecclesiastical authorities any other than a provisional toleration, on account of the extreme severity of its rules. The diet of these persons was certainly very austere, yet it was by no means beyond what nature could bear; but the ascetic spirit which regulated their minds was such as to give rise to consequences no less serious than surprising. Not only was the attention of these women habitually fixed on the most terrible truths of religion, but it was the constant practice to try them by every kind of contrariety and opposition, in order to bring them, as soon as possible, to an entire renouncement of their own proper will. The consequences of this discipline were the same in all: after being one or two months in the establishment, the catamenia became suppressed, and in the course of one or two months thereafter phthisis declared itself! . . . During the ten years that I was physician of this association, I witnessed its entire renovation two or three different times; owing to the successive loss of all its members, with the exception of a small number, consisting chiefly of the superior, the grate-keeper, and the sisters who had charge of the garden, kitchen, and infirmary. It will be observed, that these individuals were those who had the most constant distractions from their religious tasks, and that they also went out pretty often into the city on business connected with the establishment.”\*

*Damp.*—A damp atmosphere may be generated either by moisture brought to the locality through the prevalence of certain winds, or by the impermeable nature of the soil underlying it, causing the accumulation of moisture on the surface. Whether a damp atmosphere generated in the first-mentioned way gives rise to consumption, there is as yet no decided proof; but of its origin in the last-mentioned way, viz. from a damp soil, the investigations of Drs. Buchanan and Bowditch leave no room to doubt. Dr. Buchanan was appointed by the Privy Council to investigate the effects on the public health produced by the improvements lately made in the drainage, water-supply, &c. of certain towns. He found, with regard to

\* *Diseases of the Chest*, Sir John Forbes's translation, p. 334.

phthisis mortality, that its diminution or non-diminution depended on whether the sanitary improvements of the place had or had not included any considerable drying of the soil. In fifteen large towns where a diminution had taken place after the improvements, the death-rates from phthisis had fallen some 11 to 20 per cent; in others, 20 to 30 per cent; and others again, 30 to 49 per cent; and in many towns this diminution of deaths from phthisis formed the principal sanitary amendment. "This," as Mr. Simon\* says, "is extremely interesting and significant, when it is remembered that works of sewerage by which the drying of the soil is effected must always precede, and do indeed sometimes precede by years, the accomplishment of other objects—house-drainage, abolition of cess-pools, and so forth—on which the cessation of various other diseases is dependent."

These results naturally directed attention to the influence of the soil in the distribution of consumption, and led Dr. Buchanan to institute a farther inquiry on this point. By a careful comparison of the geological formations of the registration districts of the counties of Surrey, Kent, and Sussex with the death-rates from phthisis in these districts, and by an elimination of all probable chances of error, he arrived at the important conclusion, that *wetness of soil is a cause of phthisis to the population living on it*. This conclusion was supported by the evidence of the Registrar-General of Scotland with regard to that country; and by that of Dr. Bowditch of Boston, U.S., who in 1862 had drawn attention to the inequality of the distribution of phthisis in the state of Massachusetts, and to the connection of this inequality with differences of moisture of soil. He cited the written statements of medical men resident in 183 towns, which tended to prove the existence of a law in the development of consumption in Massachusetts, that dampness of the soil of any township or locality is intimately connected, and probably as cause and effect, with the prevalence of consumption in that township or locality; and he also adduced particular instances as demonstrating that even some houses may

\* *Report of the Medical Officer of the Privy Council for 1867.*

become the foci of consumption, when others but slightly removed from them, but on a drier soil, almost wholly escape. The following instance of this law came under my notice, one of the family being for some years under my care.

A rector of a parish in Essex resides on a clay soil, and has a large pond immediately in the neighbourhood of his rectory. He and his wife have always enjoyed good health, and there is no hereditary disease traceable, either in his own family or his wife's. Of their twelve children, eight were born at the rectory, and four in a neighbouring parish; but all spent childhood and youth at their father's rectory. The eldest, if alive, would now be 34; the youngest is 17. Six have died; four of consumption, one of scrofulous disease of the spine, and one of hooping-cough at the age of 5. Of the six alive, three are healthy, one is delicate, but I have not heard from what cause; two have scrofulous disease of the spine. So that out of twelve children, there are no less than four cases of consumption, and three of scrofula.

This seems to me a fair instance of phthisis arising from endemic causes, the social position of the family, who are rich, precluding many other causes which we have been discussing entering into consideration. We may therefore conclude, that dampness of soil is an undoubted cause of consumption; and in our preventive treatment of the disease we should aim at either the drainage of the soil or removal of the inhabitants to a drier locality.

The principal *general* causes of consumption having been considered, we may now pass to the local ones, *i. e.* those which act primarily on the lungs, and may continue *only* to do so for a considerable period; but, through the influence of some depressing cause, their action may extend itself to the system generally, the blood may become contaminated, and what commenced as a case of local disorder may terminate as a well-marked case of pulmonary consumption.

The origin of consumption from attacks of bronchitis is a fact that for a long time was not as clearly stated as it was well known. Whether this is owing to a feeling



of unwillingness on the part of medical men to admit a doctrine rather opposed to the old views of phthisis, and considerably modifying the value to be placed on other causes of consumption, I cannot tell; but my own experience among both rich and poor has impressed no facts so strongly on my mind as, 1st, that an individual free from hereditary taint may catch cold, and present the ordinary symptoms and signs of bronchitis; that he may, either from want of nourishment or some other depressing cause, become weakened; and that then well-marked symptoms of consumption may set in, accompanied by unequivocal signs; and that all this may take place in a few months—ay, in a few weeks: 2d, that a patient may have been subject for several winters to attacks of bronchitis, and one may occur when he is weaker than usual; and that then, in addition to ordinary physical signs of bronchitis, those of slight consolidation in the upper parts of the lungs may appear; and that these may or may not be accompanied by the symptoms of tuberculosis—to wit; increase of temperature, hæmoptysis, night-sweats, &c.; that the signs of consolidation may remain after the bronchial attack has passed away, and in time signs of softening and excavation may become apparent. These facts are not only strongly impressed on my own mind, but also on the minds of others of my colleagues at the Consumption Hospital who have had to take their share in the extensive out-patient practice; and the fruit of their experience is to be seen in the tonics and oil prescribed for apparently bronchial cases. Out of 800 cases of consumption tabulated by me from the practice of Dr. Williams, 101, or about one-eighth, originated in bronchitis and influenza; and of these, 47, or one-seventeenth, were free from hereditary predisposition. Among the hospital out-patients the proportion is probably higher, as many debilitating influences, sufficient to convert a case of bronchitis into one of consumption, are present in this class from which the richer classes are exempt. Let us take a case.

A married woman, æt. 27, came to me as out-patient at the Brompton Hospital November 11th, 1867. She had been subject for a year

and a half to attacks of bronchitis, for which she had attended under my predecessor, Dr. Sanderson, and afterwards under myself. At the time she had a troublesome cough, with white expectoration, cool skin, and quiet pulse. Loud sonorous rhonchi and some crepitation were audible over the whole chest, but no dulness could be detected. This attack passed off under treatment, consisting of expectorants, followed by tonics and oil; but she had another attack in September 1868. This was very severe; her cough very troublesome; her breathing exceedingly rapid; and she was unable to lie down. Complexion bluish; skin cold and clammy; wheezy sounds and crepitation were audible over both lungs, which were very resonant. Under treatment she rallied; her cough and breathing became easier, and she was able to lie down; but the wheezing and crepitation, though diminished, continued. After the attack she remained weak and very pale. In the beginning of December the symptoms became worse; the cough increasing; the breath became very short, the face flushed; pulse 100; skin hot, with occasional night-sweats. Crepitation was audible over the whole chest, but coarse in upper left front. Shortly after this she had hæmoptysis, amounting to 5j. two or three times, and began to vomit her food, and to pass a great deal of urine, which was, however, quite healthy. December 31st. Physical signs: Loud tubular sounds; croaky sounds upper right chest, with some collapse of the upper front; coarse crepitation upper left. After this she improved; but when seen in the end of January 1869, she had signs of a cavity in the right lung, and some crepitation in the left. The bronchitic sounds had passed off. In September she was much wasted, and there were tubular sounds in the left lung, but no crepitation.

This was a case of chronic bronchitis, extending over several years; but the patient being greatly weakened by a severe attack, in which the bronchitis became capillary, a fresh cold caused the formation of tubercle, and the case assumed a consumptive aspect.

*Hooping-cough*, by its sequelæ, bronchitis and pneumonia, often paves the way for consumption; but it will not be necessary to consider its action separately from that of the above diseases.

*Pneumonia and pleurisy*.—Many cases of consumption are traceable to attacks of one form or another of inflammation of the lungs. Niemeyer\* justly remarks, that tubercle of the lung may be a secondary consequence of unabsorbed pneumonias. I find on referring to my tables, that 121 cases out of 800 can be traced to attacks of pneumonia or pleurisy. This constitutes 15.12 per cent of the whole;

\* *Klinische Vorträge über die Lungenschwindsucht.*

and in 69 of these, or in 8·6 per cent, there was exemption from hereditary predisposition.

Dr. Sanderson, in a recent clinical lecture,\* points out how pneumonia may become consumption. He divides pneumonia into two varieties: croupous and catarrhal. "Croupous pneumonia," he states, "is a disease of limited duration and rapid course, with regular and febrile symptoms, which ends definitely in resolution or death. It consists in the rapid pouring out into the air-cells of a coagulating fluid. Under the microscope this is distinguished from other consolidations by the fact, that it contains no uniform corpuscles; none except those which are found in the healthy structure. The accession of croupous pneumonia is more or less sudden, and often attended with herpetic eruption round the mouth. The consolidation of the lung progresses rapidly and is of great extent. The fever is marked by an abrupt rise of temperature, as well as by chemical changes in the urine. In cases that recover, health is regained nearly as rapidly as it was lost, and the effused lymph disappears rapidly. This disease seldom or never leads to phthisis.

"The greater number of cases of pneumonia that one sees are not of this kind; they are cases in which the consolidation originates in catarrh, in consequence of which the air-cavities to which the affected bronchial tubes lead become filled, not with fibrine, but with a material which consists almost entirely of cells or corpuscles. These cases, in their etiology and essential nature, belong to the great family of bronchial catarrhs. The practical distinction between this sort of consolidation and the other is, that it is much less apt to be absorbed. Croupous exudation goes like snow in sunshine as soon as the patient begins to get well. Catarrhal consolidation goes, it may be, sooner or later, but rather later than sooner, and is very apt not to go at all. When this happens, the result is called, in popular language, a neglected cold. It is called so on account of its usual mode of origin. The patient gets a cold on his chest, he recovers from the feverishness and

\* *Biennial Retrospect of Medicine of 1867-8*,—Sydenham Society.



short breath which he had at first, and thinks that he is better; but he continues to expectorate, and does not regain appetite. He returns to his occupation, notwithstanding that he is losing rather than gaining flesh, and continues to sweat at night. This state of things may go on for months, before he thinks it necessary to put himself under medical treatment. When at last the chest is examined, the movement and breath sounds of one side are found defective; and on careful percussion patches of dulness are detected—sometimes at one apex, just as often in the flank, in the lower angle of the scapula, or in the axilla, or elsewhere. The case, which was before one of bronchial catarrh, is now one of phthisis, chronic catarrhal pneumonia with permanent consolidation.”

This is indeed a faithful picture of one of the modes in which consumption is produced, viz. from consolidation arising out of catarrh. But there are other modes; and I should hardly be inclined to agree with Dr. Sanderson, that the form of pneumonia which he denominates ‘croupous’ seldom or never leads to phthisis. After acute attacks of pleuro-pneumonia, it often happens that some portions of the lung remain consolidated, or the pleura is adherent for a considerable extent; and both of these lesions may exist, and by crippling the lung for its respiratory work, lower the nutrition of the body, and pave the way for the formation of tubercle. The patient recovers from the attack, and may lose both cough and expectoration; but the breath remains short on exertion, and the patient is liable to another attack. In consequence of one of these, or from a depressed state of health, the cough returns and becomes constant, accompanied by muco-purulent expectoration, and sometimes by hæmoptysis. Signs of softening are detected in the consolidated lung, which may be followed by those of a cavity, and the case becomes one of chronic consumption. Sometimes, owing to the fibrous and contractile nature of the exudation, the lung does not break down, or only partially, and contraction obliterates a great part of the breathing portion, causing great dyspnœa.

Two cases of consumption arising from inflammation

are subjoined. In the first, softening but no cavity was detected; in the second, a cavity formed, and was followed by contraction.

A married lady, æt. 27, saw Dr. Williams June 26th, 1861. One of her aunts suffered from asthma. Five years ago she had inflammation of the lungs, and was ill for a long time, and since then has been delicate. The catamenia have been too frequent, but in last five months they have stopped. Lately she has expectorated calcareous matter; cough is troublesome. Physical signs: Deficient breath whole left side of chest, with some dulness; tubular sounds, and some mucous rhonchus in the upper parts; slight rhonchus in right lung. Was ordered oil in phosphoric acid, in tinctures of calumbo and orange, counter-irritation with acetum cantharidis, and a morphia linctus. June 2d, 1863. Wintered at Pau and Bagnères de Bigorre. Always had cough, with opaque expectoration, sometimes tinged with blood. Was confined eight months ago, and has taken no oil since. Physical signs: Dulness, coarse crepitation in left lung, with tubular sounds in upper parts; also tubular sounds above right scapula. December 26, 1863. Took oil, and improved till her confinement, two months ago. This was a severe one, and no oil has been taken since. Lately more cough and expectoration, and some retching. Dulness, coarse crepitation in upper parts of *both* lungs. May 30, 1866. Wintered at Rome, and often out in the open air; but has cough and expectoration, with occasional hæmoptysis. Physical signs same.

A surgeon, æt. 34, consulted Dr. Williams July 3d, 1845. Seven years before he had rheumatic fever, and inflammation of the chest with effusion into the pleura, and ever since had suffered from cough and shortness of breath. Had been worse since May, when he caught fresh cold, and now pulse is quick and weak, and expectoration purulent. Physical signs: Dulness in right chest, chiefly upper parts, where some subcrepitus; small tubular sounds below; tubular expiration above right scapula. Ordered a tonic containing nitro-hydrochloric acid, and counter-irritation with acetum cantharidis. July 20th, 1846. Improved, and has continued in practice, but takes great care of his health. Still dulness in upper right chest, with mixture of tubular sounds and subcrepitus. June 1867. Has been living an easy life for several years in charge of an invalid. His breath has been always short, and more so of late years, as he has become stout, with more or less constant cough and wheezing. Physical signs: Dulness and cavernous sounds at right scapula, tubular above left scapula; lower and anterior portions of the chest very wheezy, and clear on percussion (emphysema). *Twenty-two* years have elapsed since this patient was first examined, and *twenty-nine* since the inflammation from which originated the disease in the lung. This was long ago arrested in its phthisical career; but the contraction of the cicatrices and consolidation around the cavities have produced emphysema in other parts of the lung, and the limited health and activity of an habitual asthmatic. June 1868. Heard lately of this patient's death from increasing dyspnœa, with œdema of the lower part of the body.

*Asthma*.—In placing this disease on my list of the causes of consumption, I am aware that I am taking up views differing greatly from those of many eminent physicians, who hold with Rokitansky that venosity of the blood is opposed to the development of tubercle. In asthma the blood is decidedly inclined to be venous; and according to this view, cases of asthma would not be likely to pass into those of consumption. Still, on searching through the records of my father's private practice, I have come across cases of undoubted asthma, some of long standing, on which eventually the symptoms and signs of consumption have supervened. Of these I subjoin two instances, both of which were free from any history of hereditary disease.

There seems to be a connection between asthma and consumption, the precise nature of which is open to inquiry. Many asthmatic parents have phthisical children; and again, many cases of arrested phthisis suffer from wheezy short breathing, much resembling that of confirmed asthmatics.

Inflammation of the lungs may give rise to either asthma or phthisis; so that the congested state of lung may in either case be the predisposing cause.

The following cases show how consumption will sometimes supervene on asthma:

A gentleman, æt. 48, consulted Dr. Williams August 7th, 1860. He had been subject to attacks of bronchial asthma, which was much relieved by iodide of potassium and stramonium; but they had recurred this summer more severely, and were accompanied by more opaque expectoration. Tubular sounds are audible above the right scapula, and whiffy sounds below. Patient has arcus senilis. A mixture of iodide of potassium, squills, stramonium, nux vomica, and glycerine, was prescribed. June 1861. Had several attacks, and one in April which was severe, but was much relieved by medicine; and he has been free since. May 20th, 1862. Wintered well at Hyères, with fewer asthmatic attacks; but in April had hæmoptysis amounting to 3j., which recurred on the journey home. Physical signs: Tubular sounds and crepitation in upper portions of both sides of chest. Was ordered cod-liver oil, in a tonic of phosphoric acid, calumbo, and orange. September 29th, 1862. Taken oil well, and has gained flesh. Expectoration streaked with blood. Crepitation still audible in upper right chest. May 1863. Wintered well at Cannes, having only two attacks of asthma, which were relieved by taking stramonium pills and burning nitre-paper.



Has taken no oil for three months. Dry tubular sounds audible in upper right chest; no wheeze. To repeat oil, with nux-vomica tonic. October 17th, 1864. Wintered in Italy, and well till June. When out fishing, caught cold, and inflammation of the lungs, with bloody sputa and cough ever since. Lost 12 lb. Physical signs: Loud tubular sounds, and some wheeze in right upper chest; some wheeze in upper left. May 1865. Improved; gaining flesh, and partially losing cough; but went late to Hyères, and had severe cold and cough for two months. Had lately hæmoptysis amounting to 3iiij. Physical signs: Dulness; tubular sounds in upper right chest; slight crepitation in upper left. Ordered oil, in a tonic of sulphuric acid and calumbo. April 6th, 1866. Wintered at Ventnor and Torquay. Always cough, with yellow expectoration. Has suffered little from asthma, but has lost flesh and strength. November 25th, 1869. Has remained in England the last two winters, and was well till fresh cold last May, but improved in the summer. In October was chilled, and has ever since had bad cough, opaque expectoration, short breath, and great loss of flesh. Physical signs: Dry cavernous sounds above right scapula, dulness and tubular above left. Deficient motion, with crepitative and obstruction sounds in left front.

This case, in its commencement, was one of well-marked spasmodic asthma, with some bronchitis, free from any hereditary history of consumption; yet after eight or nine years of the first-mentioned complaint, symptoms of consumption appeared, and eventually a cavity formed in the right lung, and some consolidation and softening took place in part of the left.

A clergyman, æt. 45, first consulted Dr. Williams January 8th, 1861. He had had eczema from childhood, and was subject to asthma till he was 25, when he visited Corfu. Since then he had only had occasional attacks; but last May a severe one occurred, and he has not been so well since. Nevertheless continued active and preaching till six weeks ago, when he was laid up with cough, rusty expectoration, fever, and pain in the right side of chest. Lately the cough has ceased; but the patient is losing flesh and strength. He has had eczematous spots on his arms for the last nine months. Physical signs: Dulness; tubular sounds in upper part of right chest, chiefly above the scapula. Slight bronchophony above left scapula. Was ordered oil, with iodide of potassium. June 22d. Went to Madeira, and improved for six weeks; then had asthma for one month; but improved in England under stramonium and oil. Lately has taken beer and wine, and sat long in Convocation; and the eczema is worse. A mixture of arsenic in gentian was prescribed. Sept. 20th, 1866. Was much better in skin and breath; suffering rarely, and attacks slight, till last January, when he had cough and fever, which were treated by stimulants. Since then the cough has been very bad, with purulent expectoration, sweats, and great loss of flesh. Physical signs: Increased dulness and large tubular

sounds in upper right chest; some obstruction sounds in upper left, in addition to usual bronchial rhonchus. Under oil and hypophosphite of soda he improved, and expectoration diminished. July 1867. Wintered at Cannes, and improved, till fresh cold. Has lately increased in weight one stone; cough moderate, and strength good. Does duty; expectoration still purulent. Physical signs greatly improved. Feb. 27th, 1869. Spent the following winter at Cannes. Well for some time; but the legs became œdematous, and remain so, more or less, up to the present time. In October the cough and expectoration increased, and were accompanied by feverish symptoms; but patient has been better lately. No albumen can be detected in the urine. Physical signs: Dulness; cavernous sounds in right upper chest, chiefly below the clavicle.

In this case consumption supervened on eczema and confirmed asthma, and in the right lung a cavity formed.

*Trades and occupations giving rise to a dusty or gritty atmosphere.*—A life pursued in an atmosphere abounding in small particles of flint, or iron, or coal, or cotton, or flax, or straw, as is the case with stonemasons, potters, fork-grinders, needle-grinders, cotton-carders, and chaff-cutters, is shown by Dr. Greenhow and others to be a short one; and the cause of death was generally found to be tubercular phthisis, induced by constant inhalation of the irritating particles. These have been detected chemically and microscopically in the lungs. They seem to set up irritation in the larger bronchii, causing thickening; and also in the lung-tissue, causing induration and consolidation. It was at first doubted whether these lesions were tuberculous; but the presence of both gray and yellow tubercle, and the tendency of the consolidations to soften and form cavities, sufficiently demonstrated their consumptive nature. Dr. Greenhow calculated that 45,000 deaths occurred from these causes in England and Wales; and he clearly showed that the whole of this mortality was preventible by the introduction of better methods of ventilation and working. Since his reports, acts of parliament have been passed which, if carried out, ought totally to abolish this cause of phthisis; and it is to be hoped that ere long we may no longer be able to number "*dusty occupations*" among our *causes* of consumption.

*Injuries to the chest and other organs.*—Among the records of consumption at my disposal, I find notes of several cases

in which the symptoms followed certain injuries, either to the chest or to other organs. In some of these cases hereditary predisposition was present; in others it was not. When we remember the results of Drs. Sanderson and Wilson Fox's experiments on guinea-pigs, these cases become interesting. Dr. Wilson Fox found that irritation with setons, or even the insertion of silver sutures into the neck, might produce tubercles in the internal organs.

Dr. Sanderson, by means of a clean needle, inserted setons of unbleached cotton into the shoulders of two guinea-pigs. One of these was killed two months after, and there were found surrounding the setons abscesses containing pus in various conditions, either dried-up or of cheese-like consistence. The other died  $4\frac{1}{2}$  months after insertion of the setons; and there were found remains of abscesses in the neighbourhood of the wounds, purulent deposits in the muscular and areolar tissue, gray tubercles in the lungs and spleen, interstitial deposit of the same character in the liver, enlargement of Peyer's patches and of the mesenteric glands. The result of the irritation was, in the first place, to produce local suppuration, and afterwards tubercles, in the internal organs. Now the cases I am going to quote appear to have had their origin in irritation, arising in one case from an injury to the eye, and in the other from a fall on the chest; and I think we may be justified in hazarding an opinion, that they bear some analogy to the experiments of Drs. Sanderson and Wilson Fox; for though the injuries did not cause suppuration, the clinical symptoms and physical signs showed the cases to be those of consumption.

A gentleman, æt. 23, whose mother had died of consumption, was seen by Dr. Williams April 13th, 1861. Five years ago, his left eye was destroyed by an accident, and two months later cough and expectoration came on, and he had hæmoptysis amounting to  $\bar{3}$ ij. These symptoms continued, and he wintered at Pau. In the following year took oil, lost cough, and was quite well till two years ago, when he had hæmoptysis several times, on each occasion amounting to about  $\bar{3}$ j. At present there is some expectoration, and he suffers from pain in the left side and short breath. Urine red. Takes oil regularly. Physical signs: Dulness, tubular sounds at and above right scapula; tubular sounds within left scapula. Ordered a bitter tonic with the oil, an



effervescing saline at night, and counter-irritation with cantharides liniment. July 7th, 1862. Wintered at Madeira, but depressed by heat; had hæmoptysis often, and congestion of the lung, relieved by blisters. Lost six pounds. Physical signs: Deficient breath, and tubular sounds at and above both scapulæ. Oct. 7th. Taken oil regularly, and better; cough slight. Physical signs the same as in July.

A steward of one of her Majesty's yachts saw Dr. Williams July 9, 1863. Eight years ago he fell on the left side of his chest, and he had experienced occasional pain there ever since. He had no cough till eleven months ago, when he got wet through, and since that has had cough with scanty expectoration. Has been yachting in the Mediterranean, and has lost little flesh. Physical signs: Collapse below left clavicle, but breath good. Was ordered phosphoric acid, with tincture of calumbo and glycerine. April 2, 1867. Has had slight cough, increased after great exposure in January, and accompanied by yellow expectoration and slight hæmoptysis. Loss of flesh. Whiffy tubular sounds upper left, front and back. Bronchophony and sibilus at right scapula. Ordered oil in tonic. I saw this man August 21, 1867, when he was greatly improved, and had gained fourteen pounds, but still he had some cough. Tubular sounds were audible in the upper left chest, with some rhonchus on the right side.

The list of causes of pulmonary consumption enumerated at the commencement of this essay has now been concluded, and it is hoped that few of importance have been omitted. The effect of introducing so many 'local' causes into the list has been to diminish the value formerly attached to some of the 'general' ones, and especially that assigned to 'hereditary predisposition;' for when we find numerous cases of consumption arising from local disease of the lungs, and devoid of any trace of hereditary taint, this fact must reduce the value to be set on hereditary predisposition in cases of consumption generally.

My object in drawing attention to the numerous agents of causation in this disease is not to hunt out exceptional cases, which may be stored up as clinical curiosities and serve no useful purpose, but rather to point out, that as consumption can have its origin in causes so manifold, so diverse, and yet withal so common, to assign to it a specific character, and to separate it by a sharp boundary from diseases into which it insensibly merges, is a course opposed alike to reason and to the facts accumulating under our eyes.

Another object I had in view in the enumeration was

to urge a reduction of the list by preventive measures. The increased duration of life in consumption is a great triumph of modern art, but the prevention of most of its causes would be a still greater one.

CHARLES THEODORE WILLIAMS, M.D.

## XI. EXOPHTHALMIC GOITRE.

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SEVEN well-marked cases of this curious affection, exhibiting all the three leading features of the disease—viz. palpitation, bronchocele, and exophthalmos—have come under my observation during the last two years. To these I have added two others of a less pronounced character; since, although one of the three great symptoms was wanting in each, they presented so close an analogy to exophthalmic goître in certain essential features, that I have been led to consider them as milder examples of the same disorder.

The true pathology of exophthalmic goître has yet to be made out, although various speculations as to its nature have been put forward by different persons who have investigated the subject. Stokes regarded it as a special cardiac neurosis, Begbie as dependent on anæmia, Von Basedow as a scrofulous dyscrasia, Laycock as an affection of the cilio-spinal tract of the spinal cord. A committee, with Trousseau at their head, appointed by the Academy of Medicine of Paris to investigate the matter, reported it to be a neurosis analogous to hysteria, having its seat in the vaso-motor nerves and ganglia. Some have regarded the affection of the heart as the starting-point in the series of morbid phenomena; others the enlargement of the thyroïd. More lately, certain morbid changes, discovered on examination of several fatal cases recorded by Peter, Reith, Von Recklinghausen, and Virchow, have suggested that lesion of the cervical sympathetic might constitute the essence of the disease.

The following cases, with three exceptions, were under my own observation for several months, and were most of them frequently and carefully examined with the view of



determining if possible the relation of the three prominent symptoms to one another; and of obtaining evidence, by the thermometer and other means, concerning the existence or absence of any local or general affection of the sympathetic system.

The first two of the seven cases of well-marked exophthalmic goître came under my notice before my attention had been specially directed to the investigation of the subject, and the notes concerning them, therefore, unfortunately are less complete than I should desire.

CASE I.—George D., a strong young fellow, æt. 19, a carpenter by trade, came to St. Mary's Hospital as an out-patient on February 11th, 1868. He was suffering from great dyspnœa, and his wheezing respiration was audible as he stood at a short distance. His eyes protruded, so that a margin of sclerotic was visible between the iris and the upper and lower lids. The pupils were dilated. The face was dusky, and the superficial veins of the forehead and neck were distended, and stood out like cords. The thyroid gland was greatly enlarged, and hard; both lobes being equally affected, but the isthmus less so. The neck measured seventeen and a half inches in circumference immediately below the pomum Adami. The carotids could be seen pulsating forcibly on both sides. The heart was beating with great rapidity and violence, the impulse being perceptible over the whole cardiac region. He stated that he first noticed the excessive beating of his heart about two months previously. This was constant, but increased by any excitement or exertion. He had enjoyed good health up to that time. Shortly afterwards he found that his throat was swelling. At this time he suffered much from headache, had occasional attacks of epistaxis, perspired profusely, and was oppressed by a sense of heat. The palpitation and goître increased, the eyes became prominent, a feeling of giddiness came on frequently, and the dyspnœa grew so severe that at times he could not lie down in bed. He then came to the hospital. The most careful and repeated cross-examination on several different occasions failed to elicit anything which could be regarded as the exciting cause of the disease. He denied having suffered from any mental anxiety or excitement, or having indulged in sexual excess or abuse. He had not been overworked, nor suffered from any exhausting discharge. He declared that he had been quite well previously, steady, and temperate—a total abstainer from alcoholic drinks—and knew of nothing which could account for the attack.

With a view of relieving the dangerous pressure of the goître, a lotion of tincture of iodine and glycerine was ordered to be kept constantly applied to the throat under oiled silk, and, contrary to the canons laid down on the subject, five minims of tincture of iodine to be taken in water three times a-day. In the course of a week the thyroid was softer, and the dyspnœa sensibly relieved. The treatment was

continued, with short interruptions from non-attendance, for nine months, the dose of tincture of iodine being increased to eight, and then to ten minims. The goître became soft, grew perceptibly less, the dyspnœa soon entirely ceased, and the heart's action became less violent and rapid. At the end of three months, the neck measured  $16\frac{1}{4}$  inches—*i.e.* its circumference had decreased  $1\frac{1}{4}$  inches. At the end of the fourth month it had lessened 2 inches more, being reduced to  $14\frac{1}{4}$  inches; so that he was able, for the first time for five months, to button the collar of his shirt. The superficial veins of the neck and forehead were no longer visible, and the eyes had receded, although the exophthalmos was still considerable. At this time the eyes were examined with the ophthalmoscope, but nothing abnormal could be detected. No relapse took place, and the improvement continued uninterruptedly. When the patient was examined in May last, the eyes were still unduly prominent, the thyroid but slightly larger than natural, and the neck measured  $13\frac{3}{4}$  inches. The heart's impulse was somewhat excessive, the sounds loud, but clear, and free from murmur. The pulse was 104. The temperature, which unfortunately was not taken during the acute stage, was found to be equal in each axilla,  $98\cdot9$ . The man stated that he had remained perfectly well for several months past.

The points to which I would direct attention in this case are, that the patient was not anæmic, or debilitated, but full-blooded and robust; that palpitation was the first symptom noticed, the heart's action being stated as regularly increased in force and frequency, and aggravated by excitement and exertion; that although the temperature was not taken until all the symptoms had abated and the patient considered himself perfectly well, it was found to be still somewhat above the normal standard, and the pulse-rate still above 100; and lastly, the immediate and persistent improvement which followed the treatment by iodine, and the fact that, although its administration was continued with slight intermission for nine months, no increased palpitation or any of the symptoms of iodism supervened.

CASE II.—Maria H., æt. 23, a tall strongly-made young woman, came to St. Mary's Hospital on April 21st, 1868. Her appearance was very characteristic, the eyeballs protruding so as to show a wide margin of sclerotic between the iris and upper and lower lids. The pupils were dilated; the thyroid greatly enlarged, both lobes seeming evenly affected. The neck measured 15 inches in circumference. The superficial veins of the neck and forehead were swollen and conspicuous. The carotids could be seen pulsating forcibly, and the action of the heart was very powerful and rapid. There was no dyspnœa.

There was no appearance of anæmia; but the complexion of the face was somewhat dusky from congestion. She stated that she had suffered from palpitation for about a year, and that her throat had been growing larger about the same time. Her eyes had become prominent more lately. The catamenia had been entirely absent for some time before the commencement of the attack. She was at this time peevish and strange. She suffered from sense of heat, and was subject to profuse perspirations even when sitting still and using no exertion. She attributed her complaint to overwork in a very hard situation as servant. The same local and general treatment was adopted as in the preceding case, with the exception that eight minims of the tincture of iodine were given at the outset, and this shortly increased to ten minims, which dose was continued throughout three months without cessation. In the course of a fortnight the tumour was found to be decidedly softer; the face was evidently less dusky, and the superficial veins less turgid and prominent. She expressed herself as greatly relieved. On May 20th, at the end of a month, the circumference of the neck was  $14\frac{3}{4}$ , and the thyroid much softer. On June 2d she was able to button the collar of her dress, a feat which she had not been able to accomplish for six months. On June 16th the neck measured  $13\frac{3}{4}$  inches only; the eyes were less prominent, and the palpitation had greatly subsided. The improvement continued, and on the 4th September the neck measured 13 inches. The eyeballs had returned almost to their natural position. The heart's action, although still more powerful and rapid than normal, had greatly moderated. The superficial veins had ceased to be conspicuous. The complexion had lost its dusky hue, and assumed a healthy look, without any of the pallor of anæmia. She said she felt nearly well; but the catamenia had not reappeared. At this time (September 1868) she went into the country, and I lost sight of her. In May 1869 I received a letter from her, in which she stated, that she had been very ill after leaving London, without giving any explanation of the nature of the attack; but that the catamenia then reappeared after nearly two years' complete suppression, menstruation had been regular ever since, and she had speedily regained perfect health. She affirmed that her eyes and throat were quite well, the neck measuring 12 inches only. She still suffered, however, occasionally from palpitation on any unusual exertion.

In this case, as in the preceding, the subject of the affection was strong and well-nourished, and showed no sign of anæmia or debility. Persistent palpitation was one of the earliest symptoms. Menstruation was arrested before the symptoms were observed, and continued to be suspended for the whole period during which the attack lasted. In this instance also the immediate diminution of the goître, accompanied by the marked abatement of all the symptoms which followed the use of iodine, and the absence



of any signs of iodism after this treatment continued for three months, were as remarkable as in the first case.

CASE III.—Charlotte T., æt. 17, a delicate-looking girl, became an out-patient of St. Mary's Hospital Jan. 18th, 1869. She dated the commencement of her illness from a severe attack of quinsy the previous autumn, up to which time she had enjoyed good health. The catamenia first appeared about this period, and then ceased. After her throat got well she became irritable and nervous, began to be troubled with palpitation and throbbing in the neck, and had several slight attacks of epistaxis, and copious perspirations. At this time she was very pale, and before long her friends noticed that her eyes were prominent, which they attributed to a bad habit of staring. She had been to the hospital previously on account of these symptoms in the preceding autumn; but attended only once, as the catamenia reappeared and she felt better. On this occasion she was seen by my friend Dr. Payne, who noted anæmia and enlarged thyroid. When she came under observation the second time, she was slightly anæmic; the eyes were markedly prominent, and the pupils were dilated, but responded readily to light and atropine. The thyroid was distinctly enlarged, the right lobe and the isthmus being principally affected. She was nervous, easily excited, and her face flushed up instantly when she was spoken to. The superficial veins of the neck were prominent. The pulsation of the carotids was very visible on both sides, and the goître moved with each beat; but no thrill or expansile pulsation of the gland could be felt. The heart-sounds could be heard very distinctly over the gland, but were free from murmur. The cardiac dulness was not increased; the heart's impulse was, however, somewhat excessive, and could be felt over the whole cardiac region. The sounds were loud and sharp, free from bruit, except to the left of the upper sternum, where a soft prolongation of the systole was audible. The pulse was 88, soft and regular. The temperature was not taken until February 17th, and then found to be—in the right cheek 97·6; in the left 98·2. From this time the temperature was regularly taken once or twice a-week for three months. The results showed no material difference between the two cheeks; it being found that the one *first* tested registered one or two tenths of a degree lower than the other in the same period of time. The temperature of the axillæ was found equal on both sides, and generally one to two tenths of a degree higher than that of the cheeks. This relation was found to hold good in the other cases examined; and appeared to depend upon the fact, that the bulb of the thermometer was in a more favourable position for absorbing heat in the axillæ, where it was closely embraced by the soft opposing surfaces of skin, than in the mouth, where the bulb was placed between the cheek and the gums, and the latter, being hard and inelastic, were in contact with a small portion only of the surface. In two of the earlier observations, however, the temperature of the cheeks was found, although the same on each side of the mouth, to be no less than two degrees below that of the axillæ. But as these discrepancies were not met with afterwards,

it may be presumed that they were the result of defective manipulation, the bulb of the thermometer probably not being so carefully placed in a favourable position as in the subsequent experiments. With these exceptions, the temperature between twelve and three o'clock in the day ranged between  $97.6^{\circ}$  and  $99^{\circ}$ ; the pulse-rate from 80 to 104, the higher temperature corresponding closely with the higher pulse-rate. For three months this patient took from 15 to 45 minims of tincture of iodine daily without any symptoms of iodism. At the end of that time she expressed herself as feeling quite well. The palpitation had ceased, and the heart's impulse was of fair natural strength. Menstruation proceeded regularly, and the anæmia had disappeared. The thyroid had diminished in size, though still larger than normal, the throat being obviously full, and the eyeballs were still unduly prominent. She ceased to attend for about two months, and then returned (July 1869) with some increased palpitation. At that time the condition of the eyes and the goître appeared unchanged. She has not since visited the hospital.

In this case the severity of the symptoms had greatly abated before any observations were made, and no very decided results could be looked for. I may remark, however, that here, as in the second instance, the attack coincided with suppression of the catamenia; that it was accompanied at the outset by epistaxis, perspirations, and irritability of temper; that palpitation was the earliest of the three great symptoms; that the pulse-rate and temperature were variable, and often somewhat above the normal standard; and that the treatment by iodine produced no increased palpitation or distress.

For the opportunity of seeing the following case I am indebted to the kindness of Mr. J. B. Curgenvén, to whom I also owe my best thanks for many important particulars concerning it.

CASE IV. — Miss C., æt. 15, a slender delicate-looking girl, had suffered from persistent palpitation for a year, and about the same time her eyes were observed to be growing bright and staring. The neck had been noticed to be enlarging for the last three or four months. She had never menstruated. She had never had epistaxis, or any kind of hæmorrhage, but had been rather subject to diarrhœa. She had become exceedingly thin, had grown very rapidly, and had been wakeful, excitable, and irritable. When I saw her, in February 1869, she was anæmic, but not excessively so; the eyeballs projected so far as to show the sclerotic beyond the upper lid; the pupils were dilated, but responded freely to light. The thyroid was enlarged equally on both sides, forming a well-marked goître. The carotids pulsated strongly and visibly, the gland moving with the arterial pulse, but not expan-

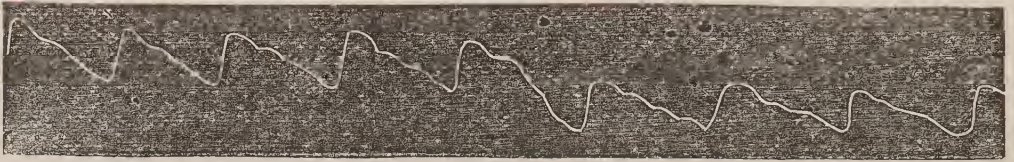
sively, nor could any thrill be felt over it. The heart was beating with great force and frequency, the impulse being visible all over the cardiac region. There was no increase of dulness. No bruit could be heard over this portion of the chest; the heart-sounds were unusually loud; and the diastole very distinct and sharp, as of the valves violently shut and tightened. To the right of the upper sternum, a systolic murmur could be heard; and over the thyroid and carotids a double blowing sound. The pulse was very sudden, powerful, and jerking, at the rate of 140. It was found that it often fell to 120 when she was lying down; but the slight motion of sitting or standing up would immediately cause it to rise to 140 again; and that the smallest mental excitement or emotion produced a similar acceleration. The temperature of the right cheek was  $99.2^{\circ}$ , of the left  $99^{\circ}$ . That of the axilla was not taken. Her face flushed-up on the smallest excitement or exertion; but there was no persistent hyperæmia of the skin. All the approved remedies had been tried without appearing to produce any amelioration of the symptoms, and the case ended fatally a few days after my visit. Violent retching came on, and she complained of great pain and deafness in the left ear. This was accompanied by slight loss of power in the right arm, which was convulsed towards the end. During the last few days she complained greatly of heat, and threw off the bedclothes. No post-mortem examination was permitted. I learnt that the grandfather died of cerebral softening; one of his sons was epileptic, and the other a stammerer.

In this case the temperature was decidedly above the normal in the single observation which was made. Persistent palpitation was one of the earliest symptoms. The attack came on at the age of puberty, before menstruation was established. The extreme excitability of the heart, as shown by the effect of slight exertion or emotion in producing increased rapidity of its action, and the implication of the cervical portion, if not the whole sympathetic, as shown by the flushing and arterial throbbing, were very striking.

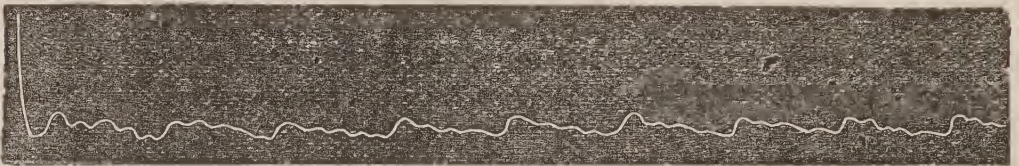
CASE V.—Elizabeth F., æt. 25, a fair-haired, light-complexioned woman, came under my notice on the 6th of April 1869. She was slightly anæmic, the exophthalmos was well-marked, the pupils dilated, but responding to light and atropine. No change could be discovered in the retina when examined with the ophthalmoscope. The pulsation of the carotids was so great as to shake a locket and the bonnet-strings lying on her neck. There was a decided goître, not very large, which moved with each pulsation of the vessels, but was not expansile, nor could any thrill be felt over it. The heart was beating rapidly but regularly, with a sharp, sudden, hammering impulse. The apex beat was in the normal position in the fifth interspace, from which



point the impulse could be felt along the cardiac cartilages, and as far as the sternal end of the right clavicle. The sounds were loud, clear, and short over the heart; but over the carotids there was a faint systolic bruit, rendered very loud by pressure with the stethoscope. The pulse was 144, powerful, and jerking in character, as seen in the accompanying tracing, showing a marked contrast to that of simple anæmia, which is appended. The temperature of the cheeks and axillæ was  $99^{\circ}$ ; no mate-



Pulse-trace of Elizabeth F.



Pulse-trace of Ellen M. (simple anæmia).

rial difference being found between the two sides. The cerebral macula could be developed by the slightest touch, but was very evanescent; and the face flushed-up on the least emotion or the excitement of talking. She referred the origin of her illness to an attack of violent abdominal pain some six months previously. After this the catamenia appeared once, but very scantily. She became nervous, hysterical, and irritable, and her ears and cheeks burnt. She suffered constantly from palpitation, and observed that her eyes were growing out. A month after the attack of pain she married, and had not menstruated since. She suffered from headaches, frequent micturition, and great general perspiration; but had had no epistaxis or diarrhœa. During the month the patient remained under observation the pulse fell, not uniformly, but with many intermediate fluctuations, from 144 to 84; never, however, being less than 116 until the last week. The temperature of the cheeks varied between  $98.6^{\circ}$  and  $99^{\circ}$ ; that of the axilla being generally slightly in excess. No material difference could be detected between the two sides, either in the mouth or axillæ. Tincture of iodine was administered in 10-minim doses; but as this caused sickness, the quantity was reduced to 5 minims, which she continued to take throughout without inconvenience. When she ceased to attend on removing to another part of London, at the end of the month, no change was perceptible either in the goître or the prominence of the eyes; but the patient expressed herself as materially improved, the palpitation being decidedly less severe. The catamenia had not reappeared, and pregnancy was suspected. Six months later, I was informed by her sister that she was quite well, with the exception of her eyes being still a little prominent, and that she had not proved to be pregnant.

In this case the disease was associated from the com-

mencement with disordered and arrested menstruation. Palpitation was one of the earliest symptoms. The temperature was uniformly increased, and the tincture of iodine did not aggravate the palpitation.

For the opportunity of observing the next case I am indebted to the kindness of my colleague Dr. Broadbent.

CASE VI.—Sarah W., æt. 52, an undersized cachectic woman, stated that she was attacked by violent palpitation on the cessation of the catamenia some seven years previously. About the same time she noticed that her eyes were growing out. She had a full throat from childhood; but when the palpitation came on it enlarged considerably. She suffered much anxiety and distress from family troubles about that time. A short time before this, but somewhere about the time of the climacteric, she suffered from inflammation of the eyes, and lost the sight of the left. Severe vomiting accompanied the palpitation when it first came on; and she also suffered from frequent diarrhoea, and occasional epistaxis. No sensation of heat, or flushing of the face, or sweating was experienced; but, on the contrary, she complained that she constantly felt cold. She complained also of incessant wearing pains in the limbs, which she called rheumatic; but had never had rheumatic pain or any swelling or tenderness of the joints. When she came under my care, April 23d, 1869, the eyes were extremely prominent, and the conjunctiva congested, showing varicose vessels. The pupil of the right eye was somewhat contracted, but responded to light. The pupil and iris of the left were hidden by the opacity of the cornea. There was a well-marked goître, but of no great size. The carotids pulsated conspicuously, and the gland moved with the arterial pulsations. The superficial veins were not notably enlarged. The heart's impulse was increased; the sounds short and sharp, except at the apex, where a distinct bruit accompanied the systole. Over the carotids a loud blowing sound was heard with the systole; but it could not be distinguished over the goître itself. The pulse was 120, small, sudden, and short. The temperature of the cheeks was  $98.5^{\circ}$ ; of the axillæ,  $98.8^{\circ}$ ; no material difference being found between the two sides. A mixture of iodide and bicarbonate of potash was ordered. Four days afterwards the pulse had risen to 138. The temperature of the cheeks and axillæ was nearly  $101^{\circ}$ ; the number of respirations, 32. The following day the pulse was 140; the temperature,  $100^{\circ}$ . She complained of pain in the goître, which was tender on pressure. The tongue was clean, and a careful physical examination disclosed no cause for the high temperature. A tracing of the pulse was taken, which shows its feebleness and jerking character—the pulse of excitement with exhaustion—differing espec-



Pulse-trace of Sarah W.



ally in want of power and tone from that of Elizabeth F., and altogether in character from that of simple anæmia. This patient has continued under treatment up to the present time (October 1869), and has taken various remedies without material benefit. Iodine has not been given. The palpitation has become less, and the general health has improved; but the pains in the limbs continue, and the goître and exophthalmos are unchanged. The pulse has never been found less than 120; but the temperature never again rose to  $100^{\circ}$ , remaining about, or slightly in excess of, the normal  $98.5^{\circ}$ .

This case presents one point of difference from all the rest. The patient was past middle-age, whereas the other persons affected were all under twenty-five years of age. The attack dated from the cessation of the catamenia. The temperature was increased—notably so for a time—and the pulse-rate ranged from 120 to 140. The inflammation of the eyes was positively affirmed to have been antecedent to the exophthalmos, and did not therefore result from exposure by their undue protrusion.

CASE VII.—Mary Ann R., æt. 23, a fresh-coloured, red-lipped girl, had suffered from hysterical symptoms for the last four years, and had attended at the hospital from time to time. Some two years since she began to be troubled with palpitation, which was constant, and so great as to cause annoyance when she lay in bed. About 18 months before, she had an attack of sub-acute rheumatism, which lasted three weeks. The catamenia have been exceedingly irregular ever since their first appearance, and often suspended altogether for several months. For a long time past she had been very irritable and excitable. Her face was always flushed, and the blush heightened when talking or excited in any way. This girl has been under my care from time to time for the last two years. At first I was greatly puzzled to account for the constant rapid and powerful action of the heart. There was no sign of organic disease. The cardiac sounds were perfectly free from bruit; there was no increased dulness over the præcordia; the pulse was full and regular, although somewhat jerking—quite unlike that of hysterical excitement or anæmia. After a time I noticed the prominence of the eyes, which was by no means extreme; and then I found upon inquiry that her friends had observed the same thing, and told her she had such a strange staring look she was not fit to go out in public. There was no enlargement of the thyroid, nor were the veins of the neck conspicuous; but the action of the carotids was excessive, and she stated that the throbbing in the neck was a frequent source of annoyance. She complained also that she was troubled by a constant sense of heat; that her face was always flushed; and she suffered from frequent micturition. During four months the pulse-rate and temperature were carefully noted; the latter varied from  $90^{\circ}$  to  $120^{\circ}$ , but was only once found to be below  $100^{\circ}$ . No material difference could be found between the tem-



perature of the opposite sides of the body, either in the cheeks or the axillæ. The temperature varied from  $97^{\circ}$  to  $98.8^{\circ}$ . The former was, however, observed only on one occasion, when the patient was faint and exhausted from long waiting; the usual height being the normal  $98.4^{\circ}$ , or slightly above it. Ten-minim doses of tincture of iodine were given three times a-day for two months without any appreciable effect of any kind. Since that time steel has been given with other tonics. Menstruation still continues extremely irregular and defective. The palpitation has, however, declined, the cardiac impulse having become almost less than normal, and the pulse small and weak. The other symptoms remain unchanged.

The persistent, rapid, and powerful action of the heart, the arterial pulsation, the prominence of the eyes, accompanied by mental irritability, flushing of the face, a sensation of heat, seem to me to stamp this case as one of slight exophthalmic goître, although the thyroïd was not appreciably enlarged. Here palpitation was the earliest symptom; and, as in the preceding cases of the disease in women, uterine disorder was present from the outset. The pulse was only once found to be below 100. The temperature was normal or slightly above it, except on one occasion under special circumstances, and the same on opposite sides of the body.

CASE VIII.—Sarah H., æt. 18, a tall, well-made girl, extremely anæmic, had suffered from palpitation for several years. This had lately increased, and she came under my care at St. Mary's Hospital in January 1869. The catamenia had been regular, but too profuse, until four months previously, when they ceased altogether. The eyes were not prominent; the pupils dilated. The heart's impulse was excessive, and perceptible over the whole præcordia. No murmur could be detected. The pulsation of the carotids was very conspicuous. The superficial veins were not swollen. The right lobe of the thyroïd was slightly but distinctly enlarged. The pulse was 120, soft and feeble, in strong contrast to the arterial action in the neck and the seeming force of the heart's contraction. A careful examination disclosed no signs of phthisis. The temperature of both cheeks and both axillæ was regularly observed for four months, and found to range between  $99.4^{\circ}$  and  $100^{\circ}$ , there being no uniform difference between the two sides. The pulse varied from 84 to 140; the last high rate being noted after she had taken 15-minim doses of tincture of iodine for ten days, having previously taken 10-minim doses for ten days. The iodine was then discontinued; but the temperature showed no decline, and the pulse-rate fell below 100 on one occasion only.

This case exhibits a contrast to all the others in the

soft and feeble character of the pulse, which was that of simple anæmia. The range of temperature was higher than that observed in any instance except Case VI.; but the persistent excited action of the heart, the high temperature, the arterial pulsation, the enlargement of the thyroïd, associated with disordered menstruation, show a close analogy in essential points to the phenomena of well-marked exophthalmic goître; and I class this with the preceding as examples of the disease in which one of the three great symptoms was absent—in the former goître, in this exophthalmos.

CASE IX. (For the opportunity of examining this patient I am indebted to the kindness of my friend Dr. Sturges.)—Martha C., æt. 22, a thin cachectic-looking woman, not distinctly anæmic, with marked exophthalmos and goître, gave the following account of her affection. Four years ago she caught cold during menstruation, and the catamenia had never appeared since that time. Soon afterwards she noticed that her eyes were prominent, and her friends rebuked her for her habit of staring. She had suffered no fright or distress. She became pale, and lost appetite. Had no diarrhœa or epistaxis then, but perspired a great deal. Five months after the first cessation of the catamenia she had an attack of acute rheumatism. She was positive on the point that the palpitation and exophthalmos preceded the rheumatic fever; and in support of her conviction adduced the fact, that the doctor called in to attend her for the rheumatism observed the prominence of her eyes, drew her attention to the enlargement of her neck, which she had not discovered, and told her they were part of the same disease. The palpitation and all the symptoms had been aggravated since that attack. When examined in October 1869, the eyeballs protruded so as to leave a margin of sclerotic one-eighth of an inch wide between the upper lid and the iris at the middle line, when its lower border was in contact with the lower lid. The pupils were dilated, but fully sensitive. The thyroïd was treble the normal size and soft, the lateral lobes being principally affected. The goître pulsated visibly, and a strong thrill was perceptible to the hand. The superficial veins of the neck and chest were distended and conspicuous. The carotids were beating with great force, pulsation being visible at a distance of four or five yards. The heart's impulse was visible over the whole præcordia, the apex beating in the fifth space with sharp sudden action. The area of cardiac dulness was not increased. A harsh murmur accompanied the systole, loudest under the left nipple, and heard faintly only over the great vessels. At the point where the goître touched the clavicle on each side, a double soft-blowing murmur was audible. The patient was exceedingly thin, and the breasts had wasted level with the surface of the chest. She stated that she had been growing thin ever since the attack of rheumatic fever; but the mammæ had only become atrophied during

the last twelve months. The face was flushed, which condition she asserted had been permanent for the last six months, and complained that she suffered from a constant feeling of heat. No change in the hyperæmia of the face occurred during the time she was under observation. The so-called cerebral macula was readily developed, but was very evanescent. The pulse was 140, regular, and of fair strength; the jerking character observed in the other cases being strongly marked. The temperature of the cheeks and axillæ on both sides was found to be from  $98.4^{\circ}$  to  $99.9^{\circ}$ , the scale ascending in the order of experiment, the first temperature taken being the lowest, the last the highest. When this patient was seen again, at the time of writing, the order of experiment being reversed, the parts which had before given the highest reading now gave the lowest, and *vice versâ*, the variation being from  $98.7^{\circ}$  to  $99^{\circ}$ . A similar gradation had been observed in previous experiments in other cases, and the lower temperatures found to be erroneous, from imperfect application of the instrument. The temperature of each may therefore, in this case, be assumed as equal, and ranging from  $99^{\circ}$  to  $99.4^{\circ}$ . The hyperæmic condition of the face remained unchanged. No similar flush existed on the chest or arms.

In this case, as in all the preceding, persistent palpitation was one of the earliest symptoms, and the pulse had the same jerking character. As in all other instances of the disease I have met with in women, except in Case IV., where the catamenia had not yet appeared, menstruation was suppressed or greatly disordered. The temperature was somewhat raised, but equal on both sides of the body. The hyperæmia of the face, similar to that observed in Case VII., and the sense of heat, showed disturbance of the vaso-motor system. The mitral bruit which existed was probably indicative of valvular disease, resulting from the attack of rheumatic fever; an accidental complication, not an essential feature of the disorder.

The foregoing cases are destitute of the light afforded by post-mortem examination; but there are one or two points, I think, in which these records furnish material evidence as to the nature of the disease, although it is principally of a negative kind. In seeking the starting-point from which to trace out the relation which the three principal phenomena bear to one another, and to some antecedent from which they spring, we may clear the ground to some extent by putting out of the case certain of those possible relations against which the evidence already seems conclusive.



In the first place, the exophthalmos cannot be regarded as the point of departure. It has been shown to be due to hyperæmic swelling of the fatty tissue at the back of the orbit, which is sometimes hypertrophied. This symptom, too, may be entirely absent, or comes on only at a later stage; and farther, we can conceive no possible way in which the condition could in itself have any influence in producing the other phenomena.

Neither can the lesion of the thyroid be regarded as the centre. It has been supposed that the exophthalmos was caused by the presence of the goître on the vessels of the neck, and the palpitation by pressure on the sympathetic. This is quite refuted by the fact, that the goître may be entirely absent, and is frequently so small, and the alteration of tissue so trifling, that, as Graves said, it is a swelling of the gland rather than a bronchocele.

Virchow has shown that there is no definite kind of goître distinctive of this disease, but that there is the same formation as in ordinary goître, which may undergo the same various degenerative changes. Moreover, large bronchoceles have evidently in themselves no tendency to produce the results met with in this strange disorder.

Lastly, the changes in the heart itself cannot be accepted as the essence of the disease. In nearly all the cases in which it has been examined after death, the left ventricle has been found dilated, and often hypertrophied. In several instances valvular disease was present; but these were necessarily extreme examples of the affection, since they were fatal; and the disease had probably lasted long, and been complicated by secondary changes. The cases I have recorded afford the strongest possible clinical evidence that no organic change exists in the early stage.

Signs of organic valvular disease were present in two cases only. In these the disease was of seven and four years' duration respectively, and in the latter had been complicated by rheumatic fever. The patients who recovered recovered completely, as far as the cardiac symptoms were concerned; they entirely disappeared. Dilatation and hypertrophy are clearly only developed as the disease advances. But although organic changes are not

necessarily present, a rapid, jerking, excited action of the heart—not temporary and occasional, but persistent—is a constant symptom. There may be palpitation and exophthalmos only; there may be palpitation and bronchocele only; but as far as my observation goes, bronchocele and exophthalmos do not occur together without palpitation. And this is in accordance with the experience of others, with hardly any exception. Dr. Reith, indeed, states, that any two of the three great symptoms may occur together, the third being absent; but in the case recorded by him the pulse-rate was 100; and he adduces no evidence in support of his statement. In the examples I have given, it was also one of the *earliest* symptoms, and generally *the first* noticed by the patient; and this, again, I find to have been so in the great majority of cases recorded. If the sequence were real, the exophthalmos and hypertrophy of the thyroid might be explained, perhaps, by the hyperæmia resulting from increased cardiac and vascular action; the supply of pabulum being excessive, the growth, therefore, also excessive. But it is more probable that this is only partially true. In a case recently brought before the Medico-Chirurgical Society by Dr. W. Ogle, in which there was persistent hyperæmia of one side of the head from injury of the cervical sympathetic, there was neither exophthalmos nor enlargement of the thyroid. There was no increased nutrition from the increased supply of blood. There must be something in addition, therefore—a nerve-stimulus—which provokes hypertrophy, and which at the same time sets the heart going at such an unwonted pace. If the three changes were set on foot at the same time, the palpitation would naturally first be appreciable, for it would be immediately established; while the others would require time for development, and therefore appear later.

The excessive cardiac and vascular action being, then, the key to the series, can we go a step farther back in the chain of causation, and find the nerve-source of this? As I stated at the commencement of the paper, during the last few years the post-mortem examination of several fatal cases has shown extensive morbid changes in the

cervical sympathetic. The ganglia, cord, and thyroïdal branches have been found reddened, enlarged, hard, and infiltrated with granular matter in some instances; and in another small and atrophied, without any histological change. Now these appearances seem quite inadequate to explain all the phenomena observed. Disease of the cervical sympathetic alone will not account for the general relaxation of the vessels which seems to exist, the diarrhoea, the sweating, the general increase of temperature, the wide-spread congestions. Even if we consider the condition of the parts supposed to be under the immediate influence of the cervical ganglia, the results are most contradictory. If we look upon the lesion as paralysis, the increased heat and the pulsation of the vessels are accounted for; but in the numerous experiments which have been made by section of the cord or removal of the ganglia, these phenomena have been accompanied by contraction of the pupil, retraction of the eyeball,—results the very contrary to those observed in exophthalmic goître. If, on the other hand, we regard the condition as one of irritation and exalted function of the gangliated cord, the cardiac excitement, the exophthalmos and the dilatation of the pupil are explained; but these ought to be accompanied by contraction of the vessels and lowering of the temperature, whereas the opposite seems to be the case in exophthalmic goître. If, too, disease limited to the cervical sympathetic were the invariable primary lesion, its existence would be evidenced by the local character of the effects produced. It is *primâ facie* unlikely that both chains of ganglia would be equally implicated at the outset. The two chains have a singularly independent action. If *one* chain were solely or principally involved, the resultant phenomena would be limited to that side of the body. The temperature, the pulsation of the vessels, and the pupil would be affected on one side only, or in greater degree on that side than the other; but my observations go to show that no such differences exist. And if *both* cervical portions were involved, the temperature of the head and neck would show great variation from that of the rest of the body—that of the cheek, for instance,



from that of the axilla; yet no such discrepancy could be detected on repeated examination. Dr. Laycock has suggested, that the centre of the nervous disturbance is the so-called cilio-spinal region of the spinal cord. The experiments of Von Bezold, and those of Budge and Waller, show that stimulation of this tract produces increased rapidity and force of the heart's action, with dilatation of the pupil. The disease is frequently associated with uterine disorder; and the known influence of uterine derangements in producing irritation of the spinal cord, and the swelling of the thyroid which accompanies each menstrual period in some women, are adduced by Dr. Laycock in support of his view. It seems certain that the sympathetic system is largely implicated, but whether directly, or through reflected irritation, is a question as yet unsolved. The palpitation, the flushing of the face caused by the most trivial excitement or exertion, the sense of heat, the sweating, the diarrhoea, the epistaxis, the frequent micturition, the irritability of temper, so constantly observed in these cases, all point to a neurosis, in which, whatever may be the centres involved, there is a persistent condition, allied to the transient one produced by emotional excitement, by which all these symptoms may be temporarily produced. But sufficient materials have not yet been accumulated on which to found a positive conclusion. The study of the disease in its early stages will throw light upon the mutual dependence and relation of the striking phenomena which it exhibits; and I think that the persistent character of the palpitation, the high rate of pulse and its jerking character, without any acute disease or organic affection of the heart to account for their existence, afford valuable indications by which incipient exophthalmic goitre may be recognised. Perhaps also the increase of temperature may give additional assistance towards the diagnosis. In simple anæmia, for which it is most likely to be mistaken, I have found the temperature below the normal standard in the few cases which I have examined, and the pulse weaker and less sudden and jerking. The contrast in this latter respect is very well shown by the sphygmographic tracings given in former

pages. Anæmia can no longer be regarded as the sole exciting cause and essence of the disease, as maintained by Dr. Begbie and others. Cardiac and vascular pulsation and hæmic murmurs undoubtedly occur in chlorosis, and anæmia from hæmorrhage. But in three of the cases given above, as in others which have been placed on record, no sign of anæmia existed. There was neither pallor nor chlorosis. If the phenomena have their origin in a disordered state of blood, such as chlorosis or a special dyscrasia, as suggested by Von Basedow, the action takes place through the agency of the nerves. The interest centres more and more on the part they play in the matter. The fact that a very large proportion of these cases occur in women, in whom reflex nervous symptoms are readily produced, and that the disease is so frequently associated in them with the advent of puberty, disordered menstruation, or the cessation of the catamenia, one or other of which conditions was present in every instance I have seen of the disease in females—*i.e.* in eight out of the total number of nine cases I have met with—suggest the possibility of its being dependent upon uterine irritation in the great majority of cases. Other causes which have been assigned are fright, anxiety of mind, and over-work; but of these I can say nothing from my own observation.

The immediate and extraordinary improvement which followed the use of iodine in the two first cases, two of the most severe in the whole series, was very striking, and can hardly be referred to a coincidence in each instance of the administration of the remedy with the natural decline of the malady. The tolerance of this drug exhibited in the others shows that the statements made by nearly every writer on the subject, that iodine is almost invariably hurtful in this form of bronchocele, are not fully borne out by facts. It is probable that iodine is useful only in those cases where the goître is large and exercising dangerous pressure; but these records prove, I think, that it ought not to be excluded from the list of remedies available for the treatment of exophthalmic goître.

W. B. CHEADLE, M.D.

## XII. CLINICAL NOTES ON UNUSUAL SURGICAL CASES.

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It has lately been a subject of consideration whether old age is in itself a reason for the non-union of fractures. A case in point lately came under my care in St. George's Hospital.

### CASE I. *Ossific union at the age of ninety-eight.*

A farmer, æt. 98, was admitted with a fracture of the right thigh. He could bear no pressure on the affected limb. Different kinds of splints and bedsteads were used with a view of keeping the bones in position. These had, however, all to be abandoned, as the skin sloughed wherever any continued pressure was applied; a dark spot also appeared at the extremity of one of his toes. Ultimately the patient was left on a water-bed, and everything in the way of artificial support was discontinued. The bones became much displaced, but for a time the patient's general health and spirits continued good. After an interval of several weeks, the pressure of the lower extremity of the upper fragment of bone caused the skin to ulcerate, and the end of the bone protruded. This was followed by no constitutional disturbance, probably in consequence of the cancellous structure of the extremity of the bone having already been closed by fresh bony deposit; so that although there was a fracture communicating with a wound in the skin, all the conditions which render a compound fracture formidable were absent. After being several months in the hospital, the patient died, having apparently reached the natural period of his existence. The thigh-bone was removed entire; having been united at an angle, a very extensive provisional callus had been formed. This was several inches in circumference, and composed of real bony matter. The bony capsule was not very thick, but quite sufficiently strong to fix the fractured extremities of the bone in their position; altogether a very large amount of new bone had been formed; certainly very much more than would have been necessary to repair an ordinary fracture. I ascertained that ninety-eight was the age placed upon this old gentleman's tombstone.

### CASE II. *Loss of the tongue from syphilitic ulceration.*

A few months ago a young married woman was admitted under my care into St. George's Hospital with well-marked secondary syphilitic



disease. Her tongue had become ulcerated, and had gradually been almost entirely destroyed—a rudiment the size of half a leech alone remained. This was very vascular, ulcerated, and the process of destruction was still going on; she could speak so as to be understood. A calomel-bath was ordered every night, and a pint of the simple decoction of sarsaparilla daily. Under this treatment she gradually improved; and at the end of two months the remains of the tongue had become covered by mucous membrane. No further ulceration occurred, as far as I am aware, in this case.

Several analogous cases of extensive phagedænic ulceration have occurred in my practice, in which the local and general calomel fumigation have apparently exercised a very decided and immediate influence upon the disease. Among others, the following case of G. H., æt. 24, may be cited:

About a year before admission into hospital he contracted a sore on the prepuce, near the frenum, which soon spread to the glans, causing some swelling and total inability to draw back the foreskin. For about two months this continued increasing, until it involved the whole glans. The parts presented a white appearance, and the end of the penis gradually sloughed away, and continued doing so up to the time of his admission. During this time he had been treated in divers workhouses, &c., with different kinds of applications, without receiving any benefit. When admitted, the penis was eaten away close to the scrotum on the right side, and the sore was gradually spreading in that direction; on the left side about half an inch was left, in an unhealthy sloughing condition. He was put on bark and acid, and the sore dressed with tincture of benzoin, and linseed-meal poultices were applied. This treatment was continued for a week, when the sore presented a clean and healthy appearance. He was then ordered local calomel fumigation, 3ss. every night, and to dress it with chloride-of-soda lotion. The first day after fumigating, the sore began to heal round the edges, and in three weeks it was entirely healed. The gums began to be affected in this case a fortnight after commencing the fumigation.

In one similar case in private practice, the calomel fumigation, as well as all other remedies in my hands, as in those of other medical men, entirely failed. The whole of the penis in front of the scrotum, and a considerable portion of the scrotum itself, was destroyed.

#### CASE III. *Disappearance of one testicle.*

Dr. Cumming, of Cadogan-place, brought a young gentleman to me in a state of great alarm because one of his testicles had disappeared. Upon a careful examination, it was evident that there was one only in the scrotum. This gentleman had an inguinal hernia on the left side,

for which he had worn a truss. It had happened, in some way or other, that the testis on that side had passed up into the inguinal canal, but it could not there be felt by any mechanical examination. I recommended that this patient should go without his truss for a few days; and, to his great relief, the testicle in a short time made its appearance again.

CASE IV. *Severe long-continued pain. Disease of bone. Excision of the shoulder-joint.*

Emily D., æt. 16, fell and struck her arm in July 1863. This was followed by swelling and pain. An abscess formed in the forearm, which remained open for four or five months. When the abscess closed, the arm, as she stated, became stiff. She now became an out-patient of St. George's, and was supposed to be suffering from a hysterical affection of the joint. Motion of the joint, she said, gave her great pain; but the joint could be freely moved under chloroform. In November 1864, fibrous ankylosis of the joint was found to have taken place. The patient being placed under chloroform, forcible extension was employed. After a time an abscess formed; and when I first saw her a probe could be passed from a sinus at the back into the interior of the joint. The elbow-joint was excised in June 1866. She apparently progressed favourably until the 10th of July, when she complained of pain on the inside of the joint. The surrounding skin was red and hot. On the 13th of July the wound was looking unhealthy; she complained of great pain, and had not slept during the night. 20th. Had shiverings for about four hours, and had passed a sleepless night. Pulse 134, and weak. 31st. Had a rigor for about five minutes last night. The symptoms generally were relieved. After a time she left the hospital, and was again admitted on the 26th of December. An unhealthy-looking wound then existed at the back of the arm, discharging offensive pus. She had occasional shiverings, followed by perspirations and diarrhœa. The pulse was small, very quick, and irritable. She lost flesh, and looked extremely ill. The discharge from the joint was discoloured and offensive. A variety of remedies were now tried, without success; the patient became weaker, and the nocturnal perspirations more decided. The pain in the part was extreme. At length, after consultation, the arm was amputated in January 1867. It was now found that a very considerable quantity of new bone had been deposited around the extremities of the humerus and ulna. This extended for several inches, and enclosed a small portion of dead bone within the ulna. The operation was followed by relief of all the symptoms, and an excellent stump was formed. This, however, became extremely sensitive. She was sent to Seaford on the 4th of April 1867. Upon her return, the pain in the stump had increased. It appeared situated principally in the direction of the median and ulnar nerves, the extremities of which appeared enlarged. No satisfactory examination, however, could be made, on account of the extreme pain produced by handling the part. Every remedy, upon every plan which suggested itself, and the introduction of all remedies, were tried; but still excessive pain in the part

continued. This pain was quite real, as indicated by the sudden suffusion of the countenance when some particular parts were touched, and by her sleepless nights. I took the trouble to have it ascertained, by the periodical visits of nurses and house-surgeons, whether she really did sleep at night; and I found that the account she gave of her restlessness was perfectly correct. After some months, on the 6th of Feb. 1868, the pain continuing uninfluenced by treatment, the patient was placed under chloroform, and the median and ulnar nerves were dissected out. Their extremities were found to terminate in expanded white cartilaginous bulbs.

It was now thought that the disease would have been cured. The pain, however, recurred after a time, and was as severe as ever. The symptoms were very much a repetition of those formerly experienced, except that the pain in the stump was more general.

Once more, on the 24th of August 1868, all the nerves, including the musculo-spinal, were divided close to the armpit. The patient's sufferings were again mitigated for a time, but again returned with all their former severity. It now appeared that the seat of pain was in the bone itself. The skin of the stump had lost much of its natural sensibility, and might be freely handled; but any pressure against the bone caused evident and unmistakable indications of acute pain. All kinds of remedies which were thought to be available were tried, and again without effect. The patient looked thin, weak, and dejected. At length, on the 8th of April 1869, under the impression that the nerves of the bone were affected, and considering that the portion of the humerus which remained could be of little use to her, I proposed its removal. To this she consented, provided I would not remove any more of the soft parts; and accordingly one long incision was made on the outside of the shoulder and arm, and the bone was dissected out and removed from the glenoid cavity. The wound appeared to heal readily; the pain from which she had so long suffered was gone. She was sent to Margate on the 12th of June. In the middle of July an abscess burst. She returned to St. George's on the 10th of August quite free from pain in the part. The pain had not returned on November 14th, when I saw the patient.

The patient in this case was undoubtedly of an hysterical disposition. Her case bears a strong resemblance to those which have been described by Sir B. Brodie and Mr. Mayo, in which several operations were performed without any permanent alleviation of the patient's sufferings. In one case which I had an opportunity of seeing, Mr. Mayo performed several operations, and at length amputated the thigh at the hip-joint. The sufferings of the patient were not relieved in this case after the operation; but were, I believe, ultimately removed by other means.

Sir B. Brodie has left us on record his opinion, that we



should not mistake cases of nervous affections for those of real local disease; and that it is equally important that we should not mistake the latter for the former. The cases which had come under his notice appeared quite conclusive against all attempts to relieve hysterical affections by an operation. With the soundness of this judgment we must all agree; but the point which I wish particularly to note in relation to these cases generally, and in reference particularly to the one which I have described, is this: viz. that it does not necessarily follow, because a patient is hysterical, that therefore there may not be some real disease which the hysterical disposition may aggravate and mask.

In the case which I have related, the abscess which formed in the joint, the small portion of dead bone in the ulna, and the deposit of new bone around the old, are sufficient proofs of real disease, whereas the recurrence and the character of the pain were similar to those observed in hysterical cases. My opinion was, that the real disease in this case localised and kept up the hysterical symptoms, and that if the first could be removed, the latter would be relieved. It is, however, very remarkable that the symptoms were not relieved in this case until the whole of the bone was removed, and that the pain (whether dependent at last upon some disease in the minute organisation of the part, or whether kept up from simple habit after all the real disease had been removed) was in the bone itself. Under the circumstances the division or removal of the nerves supplying the soft parts was insufficient.

During the earlier part of the history of this case, the patient used to keep her arm in a semi-flexed position. Chloroform being then administered to her, it was found that the arm could be moved freely. This at the time was thought to be conclusive of the hysterical nature of the case; however, fibrous ankylosis and abscess in the joint supervened. It is quite possible that some disease may have existed in the joint at that time sufficient to have given her pain on motion (aggravated perhaps by her hysterical condition), without being suffi-

cient mechanically to impede the motions of the joint. Counting the occasions upon which forcible extension of the joint was practised before the patient came under my care, eleven operations altogether were performed before the patient was permanently relieved.

CASE V. *Embolism simulating Syphilis.*

An officer was returning from India by sea, when he was suddenly prostrated. What the nature of the attack was, I had no means of learning with any accuracy. Upon his arrival in England he had a tubercular eruption on his skin, which was supposed to be syphilitic, and for which he was accordingly treated. He had severe and long-continued pain in his bones, which became perceptibly enlarged in different places. After being under treatment for two or three months, one leg became suddenly very much swollen and extremely painful. This gradually subsided, and then as suddenly the opposite leg became affected in precisely the same way. There was extreme pain and swelling; some redness of the skin, with very little œdema. This swelling also gradually disappeared, and the patient was thinking of leaving town, when the right eye suddenly became affected. It was supposed that this might be syphilitic iritis. There was inflammation of the choroid and iris, with deposit of lymph. The affection progressed steadily, apparently unaffected by any remedy. The sight was lost at a very early period. The eye protruded, and there was a strongly-marked lateral squint. Some leeches were ordered, and the day after an ecchymosed spot was observed beneath the conjunctiva. It was supposed by the friends that one of the leeches might have had something to do with this appearance, which I confess I looked upon with grave suspicion. After a few days several other dark spots appeared beneath the conjunctiva. These coalesced; and at length nearly the whole of the upper part of the tunica albuginea was covered by a black patch. Shortly after this the cornea became white, and ultimately sloughed.

It is unnecessary for me to go further into the details of this case. The termination of it left very little doubt in my mind that it was a case of embolism; and the interesting point in it is the great resemblance that the symptoms bore to those of syphilis. It is, of course, possible that embolism may have occurred in a syphilitic subject.

A case occurred some years ago in which I was interested, where a man and his brother met with a railway accident. Both parties claimed compensation from the

company. The amount of injury in both cases was disputed; but a compromise was effected with regard to the brother, who shortly after died. The other case came on for trial, and among the symptoms which the patient described was that he had double vision with one eye. This was said on high authority by the medical witnesses for the company to be impossible. A case in point is now under my care, and curiously enough had been under the care of the gentleman who particularly maintained on the part of the company that double vision with one eye was impossible.

CASE VI. *Double vision with one eye.*

My patient is a remarkably intelligent and well-educated man. He has been for some years affected with certain anomalous nervous symptoms. He has assured me over and over again, and has told the same to the gentleman under whose care he formerly was, that under certain conditions of physical derangement he sees distinctly double with one eye. This occurs chiefly with regard to distant objects, as the moon or a flagstaff. It matters not which eye he closes, he sees double at those times with the other; and if he keeps both eyes open, and mechanically displaces the axis of one, by pressing his finger against the globe, he then sees double with both eyes. He would, under those circumstances, see four distinct moons, the circle of each separate from the others.

My railway patient's case may or may not have been exaggerated; but I have lately seen him—some years after the trial—apparently in the same state of mental incapacity as he displayed at the time.

HENRY LEE.





### XIII. REMINISCENCES OF CASES FROM PRIVATE PRACTICE.

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THERE can be but little doubt, that the country medical man enjoys opportunities of seeing almost as much, and perhaps even more varied practice than his town brother. At the same time the fatigue consequent on the distances between his patients, the constant call on his time, together with many other obstacles, place him at a great disadvantage as to recording or even remembering many important and most interesting individual cases. For who could easily report, or even note, the particulars of good cases, say perhaps after a forty-mile ride? Thus every year the records of thousands of noteworthy cases are lost for ever to the profession.

Again, the town man has the stimulus of his medical society, hospital, or other professional appointment, to keep him up to the mark in noting cases, and in recording the same fully; whereas the country doctor looks forward as an event of the year to his possible visit to his county town, to meet a branch of the medical association to which he may belong.

Now in one respect I hold that the country practitioner has of necessity cases so impressed on his memory that he cannot forget them; as for instance when, miles away from any extra aid, he is compelled to form and act without hesitation on his own unbacked opinion.

Several of the following cases would, I presume, be deemed not unworthy themes for clinical lectures at our metropolitan medical schools; but, for the reasons before mentioned, are here only briefly reported, and in several instances from memory, aided only by some concise notes. Consequently, I flatter myself that the reader may pos-

sibly consider that these cases merit a larger place in his memory than the space they occupy in this volume would induce him at first to believe.

I have always held, that disease sufficiently grave to terminate in death merits some record in one's mind. Remembering this, I have invariably noted down a few short particulars of each fatal case since I began practice. And these notes have been made on the back of the duplicate of the "Medical Certificate of the Cause of Death," which, by the bye, I would recommend as a good rule to all medical men signing such certificates; as these, short as they may be, will in after years enable the practitioner to recall the minutiae of cases which otherwise would slip entirely out of his memory. And a collection of such duplicates would be of much more professional value than the record of deaths of the Registrar-General.

CASE I. *Punctured wound of the external iliac artery, followed by aneurism; cured by pressure.*

On the 5th of August 1868 I was called to see J. P., a lad, æt. 16. Found him lying on a hurdle, on the ground, pulseless and unconscious; trousers and other clothing saturated with blood. Heard that he had been found a few minutes previously on the ground, faint, and bleeding profusely. On removing his clothes, I found a punctured wound in his right groin, about one-sixth of an inch long, and a quarter of an inch above Poupart's ligament, immediately over the course of the external iliac artery; bleeding had ceased. Having had him very quickly removed to a bed immediately at hand, I placed a bladder of ice over the groin, and administered stimuli. He soon recovered enough to tell me that his nail not being strong enough to open the blade of a stiff new penknife, he pressed the same half open against his groin. The point pierced his clothing, and immediately a jet of blood followed. He walked a few yards towards his master's house, when, feeling his strength fail, he called for help, and remembered no more till narrating this to me. After consultation, there being no more hæmorrhage, it was determined to let well alone, but to tie the external iliac artery immediately should any bleeding recur, as any additional loss of blood must have been fatal. A bladder of ice, with slight pressure, was kept up, the knee being raised and the muscles relaxed. All went well; no bleeding; and in a few days the little wound was entirely healed. Perfect rest still insisted on; although this last was not relished by my patient, who rapidly began to recover strength.

However, on the thirteenth or fourteenth day after the accident, I discovered a small pulsating tumour at the seat of injury, which in two days increased to the size of a small walnut, pulsation in which was

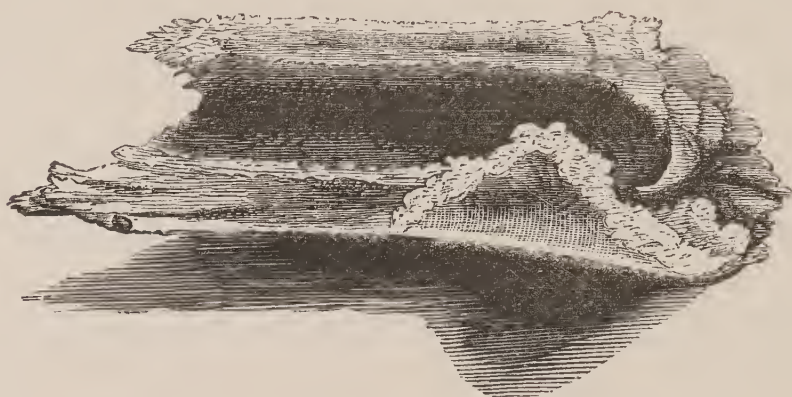


very strong; and there was a loud bruit audible along the whole course of the femoral artery; pressure on and above the tumour arrested it, but it took considerable force to do this. A tourniquet was with some difficulty applied over the swelling; but this had to be removed after twenty hours, as it could not be borne. A pad was then adjusted to a fourteen-pound weight, and this made to press on the aneurism, which at once stopped both pulsation and bruit: less weight was not sufficient. This pressure was almost continually kept up to the 4th of September, the patient submitting readily, as he was now fully alive to the alternative in case of failure of this treatment. From the above date the pressure was continued, but for a few hours only daily; all bruit and pulsation ceased; the swelling disappeared; the temperature and circulation of the limb were perfect; and at the end of nine weeks from the accident the lad returned to his work, and up to the present time has had no farther trouble.

CASE II. *Compound comminuted fracture of the humerus. Exfoliation of bone, and perfect recovery after two years.*

On the 15th of April 1867, Mr. M., an innkeeper, æt. 50, was brought to my house, having a few minutes before been thrown from his gig. He was thoroughly collapsed, and before removing any of his clothes, I found a sharp point of his left humerus protruding through his coat and overcoat. After removing his clothes, this I found to be a portion of bone protruding through a wound situated rather below the middle of the arm, at the inner edge of the biceps. On the opposite side of the limb, and at about the insertion of the deltoïd, was a second wound, through which another portion of bone had been driven. Thinking amputation must follow these extensive injuries, I had him taken to his own house, about a mile distant, when, after adjusting the limb, reducing the protruded bone, and getting some amount of reaction—finding there was no great hæmorrhage, and that the hand was warm, and that the nerves seemed intact—at the earnest solicitation of both patient and friends, I consented to give the limb a chance, but with small hopes of ultimately saving it. Carbolic-acid lotion was applied, and the injured limb as well protected by splints as the difficulties of the case permitted. Notwithstanding his having been always a temperate man, and having enjoyed excellent health and all the advantages of an unimpaired constitution, for the first week fever and every adverse symptom ran so high, that I almost repented the risk I felt I was now exposing him to. For five weeks the strictest rest was maintained, during which time the external wound quite healed; one week later the splints were removed, when I was grieved to find that no attempt at union of either of the fractures had taken place; and in addition to this, the internal wound was discharging freely foul pus. After consideration, and ascertaining that time was of small importance to the patient compared with the ultimate advantage of saving even a crippled arm, I enveloped the whole in a cardboard splint, covered with a chalk-and-gum bandage, leaving ample room for the exit of the discharge. In the middle of July, some fourteen weeks after the accident,

the splints were again removed; and as by this time no union had taken place, although the inner wound had healed, the patient himself, from hope deferred, requested amputation. Nevertheless, after consultation with Mr. Prescott Hewett, the man was persuaded to give it another chance, and the arm was kept perfectly quiet on an angular splint to the end of November, when, to my great delight, I found that there was firm union; the old external wound had again opened, was discharging, and through it could be felt a considerable portion of denuded bone: the splint was now worn as a matter of precaution all through the year 1868. The arm gained strength, and the patient his accustomed good health, although the wound still discharged, and the denuded bone did not separate. In May 1869 it was evident that the dead portion was loose; but I used no force to extract it; and in July, two months later, a piece the shape here represented came away. It



was fully five-sixths of the circumference of the whole shaft of the humerus. The wound then rapidly healed, leaving an arm which, for size, strength, length, form, and utility, is scarcely to be distinguished from its fellow. It may be asked, why is there no shortening, when almost two inches in length of nearly the entire shaft of the bone has come away? New bone must have formed. I can but think that country air, a good constitution, combined with patience and carbolic acid, had much to do with the success of this case of conservative surgery.

### CASE III. *Ununited fracture of humerus. Death.*

John W., æt. 68, a leather-dresser, came to me on the 3d of April 1868. Complained of intense pain in his upper left arm, and reported that some three or four weeks before he had fallen off a ladder on to the ground—a height of eight feet. For an hour after he suffered great pain in the limb; nevertheless, by favouring this arm, he was enabled to continue his work through the rest of the day, and, in fact, every day till I saw him. All this time he was in pain more or less. I found that he could place his hand on the top of his head unaided, and move the arm in any direction with slight pain. There was no swelling, tenderness, or inequality of the humerus, or of the elbow-joint or bones

of the forearm. Complained that the pain at night became almost unbearable. After a most careful examination, I came to the conclusion that there was neither fracture nor dislocation, but that probably there was lesion of some of the nerves. Pain and fever wearing the man down, he soon after was obliged to keep his bed; when, on the 21st of the same month, and seven weeks after the original injury, I found, much to my surprise, a fracture of the humerus, about its middle. There was great mobility, but no crepitus, and pain now entirely ceased. I placed the arm on an angular splint, and enclosed it in a chalk-and-gum bandage, and kept up the man's general health by nourishment and his accustomed stimulants. Through the month of May things did not much alter; he kept his bed, and his strength gradually diminished; and he sank on the 5th of June, fourteen weeks after the original fall. At a post-mortem examination, I found an ununited fracture of the humerus, about the middle, which was surrounded by a large sac, containing about a pint of sero-purulent fluid, through which flocculi of fibrin were floating. There had not been the slightest attempt at bony union; and the periosteum was inflamed, and could be peeled off from the shaft of the bone for some distance above and below the injury. The body was much emaciated; but with the exception of the liver, which was both enlarged and showed traces of the former habits of the man, all the other organs were healthy. There was no trace of pyæmia.

The remarkable feature in this case is the fact that this man continued to work at a rather laborious occupation for over three weeks, and that at first without very great pain. To me there seem to be no less than three explanations of how he continued to work. First, it is possible that at the time of the accident the bone was not fractured, but such injury inflicted on it and on the periosteum as to render its breaking, perhaps during sleep, six weeks after, not an impossibility. Secondly, the bone may have been broken at the time of the fall, and the ends have been impacted, and then have become disunited at the time I discovered the fracture. Or, thirdly, did bad surgery overlook a fracture? This latter I can scarcely believe, as I made repeated and careful examinations. Here I leave the case, to me, at least, still enveloped in obscurity.

#### CASE IV. *Rupture of the urinary bladder. Death.*

J. T., a young farm-labourer, æt. 20, having drunk a large quantity of ale and cider during a very hot day in July 1860, received a kick from a powerful cart-horse on the lower part of his abdomen. No one saw the accident. He was found soon after in a state of collapse and partial coma; his master and fellow-labourers, thinking him "only drunk," left him lying in the field till evening, when he was removed to his bed, where, towards next morning, he vomited, became sensible, gave an account of the accident, complained of great thirst and pain, and finally sank about 9 A.M., sixteen hours after the injury. No medical man having been sent for, a coroner's inquest was held, and a post-mortem examination ordered, at which I found: Abdomen con-



tained about four pints of fluid, emitting the odour of urine, slightly tinged with blood, and containing some flakes of lymph. The whole surface of the peritoneum was highly vascular, inflamed, and even roughened in patches. There was an opening through the coats of the bladder nearly three inches in length, from the attachment of the urachus posteriorly, capable of admitting three fingers. All the other organs quite healthy.

Rupture at this part of the bladder is by no means common; and, apart from this, the case at the time made a considerable impression on my mind, showing clearly as it did the importance of every one being careful not to condemn hastily persons found insensible as being "only drunk."

CASE V. *Double strangulated crural hernia in a male. Operation.*  
*Death. Post-mortem.*

August 2d, 1868, I was called to see George B., æt. 69. Found him suffering from a small strangulated femoral hernia of the right side. He stated that he had been subject to this for years, but had before this always been able to get it back, and had never worn a truss, or ever mentioned his ailment to any one, even the members of his family. It had now been down between two and three days. All the usual symptoms of strangulation being most urgent, with help I administered chloroform, and attempted reduction. Failing in this, I at once proceeded to the operation, in which nothing remarkable occurred. The sac (very old, and firm, and tough) contained a knuckle of very dark chocolate-coloured small intestine, and a portion of omentum, likewise very dark and intensely congested. The neck of the sac was exceedingly tense, and there were patches of new lymph on the surface of the bowel. Having united the wound by silver sutures, and given a full dose of opium, I left my patient relieved. He attributed this last protrusion of the hernia to his having a hard cough. All went well up to the third day, when, without trouble, pain, or medicine, his bowels were twice freely relieved. The external wound looked healthy, and the sutures were removed, and it was dressed with carbolic-acid lotion. From this time to the ninth day all went well, and the bowels had again acted, when, early on the morning of the 11th of August, I was sent for. Found him suffering again from all the most urgent symptoms of strangulated hernia—vomiting, hiccough, tenderness, &c. Found in his left groin a small very hard tumour. This, he told me, had been down for twelve hours, and was brought on by coughing; it had not before been down for some years. Dreading another operation, he had for hours been vainly attempting reduction, and in this had used considerable force. After some little trouble, I got it back, without chloroform. He was much exhausted, had rigors, and sickness continued. Things went from bad to worse: the wound from the operation on the 2d, which had all but completely healed, gaped, and assumed an unhealthy sloughing appearance; and death occurred on the evening of the 12th, ten days after the operation.

At a post-mortem examination next day were found patches of semi-

organised lymph over the right side of the peritoneum, covering the small intestines, a portion of which, some six inches long, showed signs of recent acute inflammation; was soft, and its layers could be easily separated, but it had quite recovered the dark chocolate colour seen at the operation. On the left side was another portion of gut, about two inches in length, of a very dark colour, soft, and pulpy. This was evidently the piece which had been strangulated in the left hernial sac the day before death. The sac on the left side was small, and showed no traces of recent inflammation; that on the right had become obliterated by adhesions, &c., the result of the operation.

This is the only case in which I have seen double femoral hernia in the male, and as such was interesting. At the same time, I could not but think myself peculiarly unfortunate in having to deal with a second strangulation before my debilitated patient had well recovered from the effects of the operation on the other side. I believe, had I seen him earlier after the strangulation of the second hernia, and either then reduced it without force, or operated on it, my patient would have had a good chance of life; but that much of the mischief was brought on by his own efforts at reduction, thereby hoping to avoid a second operation.

CASE VI. *Inguinal hernia. Strangulation. Operation. No action of bowels for twenty-five days.*

William B., æt. 70, a labourer, had suffered for many years with a very large reducible hernia, for which he usually wore a truss, but on this point was not over particular. On several occasions when strangulated I had had to reduce it, and had repeatedly cautioned him. In 1859 I had even to give chloroform before reduction could be accomplished. In 1861 he again got it strangulated, and allowed it to remain down this time no less than three days before sending for me. Reduction even under chloroform being impossible, I operated. Found the large sac contained much serum, some feet of dark dusky congested bowel, and a large bit of omentum in the same state, both looking almost gangrenous. After much trouble and time I managed to reduce the whole, gave a full dose of opium, and left him with but the slightest hope of recovery. For days the patient hovered between life and death, vomiting very frequently, and the vomit often of a stercoraceous character. He retained now and then a dose of solid opium. On the tenth day after operation, sickness having somewhat diminished, calomel was added to the opium, and was retained by the stomach; but up to the twenty-second day sickness, tenderness, and the other symptoms of acute peritonitis had not ceased. During this time there had been no action of the bowels; but the patient now, for the first time, expressed his belief that he should recover. His stomach now retained beef-tea and other fluid nourishment; and on the twenty-fifth day after the operation the bowels acted freely; and from this time he made a good recovery, and remained alive and well some years, probably after this escape paying more attention to his instructions as to wearing his truss. The persistent vomiting and lengthened constipation in this case were very remarkable; but it was one in which I was taught the lesson—never despair.

CASE VII. *Fractured skull. Ruptured meningeal artery, &c.*  
*Death and post-mortem.*

In the winter of 1863 W. F., a cattle-dealer, attended our country market, and, as was his usual custom, drank freely. In the evening he was known to have had a quarrel with another man, and blows were seen to pass between them. Some time after this he was seen to fall backwards heavily from the step of a public-house on to the stone pavement. After having had some more to drink, and seeing several parties who noticed no peculiarity in his manner or gait, he got his horse and cart, and as the roads were very slippery from frost, he was supposed to have walked home, a distance of two miles and a half. He then ate some supper and went to bed, his wife only remarking that he was rather more drunk than usual. He slept soundly; but towards morning his wife was aroused by his stertorous breathing, and found that he could not be awakened. His medical man was sent for, and during the forenoon of the same day I saw him in consultation. He was comatose. There was no visible external injury; no depression; no bruise; and I wished to open the temporal artery, to which his friends objected. No change took place, and he died early next morning. A post-mortem examination and a coroner's inquest followed. At the former we found a most extensive fracture of the skull, extending from the right parietal bone through the left parietal and occipital into the foramen magnum, from about the middle of which an anterior fracture branched off, crossing the course of the left middle meningeal artery, from which had exuded an immense clot of blood, extending over nearly the whole left surface of the brain. At one spot it was about an inch thick. The patient had mentioned the quarrel and blows, but not the fall, to persons he met before he left the town; and his friends at the inquest tried to ascribe the fracture and extravasation to the blows; but it was medically evident that these extensive injuries were quite incompatible with the force sworn to have been expended in the blows, which were witnessed by several persons; whereas the fall, although sworn to by but one person, was enough to account for everything. The night being cold, and his erect posture in his supposed walk home, no doubt retarded hæmorrhage, so that symptoms were slight until the recumbent position, together with the warmth of the bed, on the contrary, promoted bleeding.

This case shows that extensive injuries may be inflicted on the skull, involving even the rupture of large vessels, and under favourable circumstances no symptoms of compression be manifested for some time.

CASE VIII. *Exudation of gall-stones through the abdominal wall.*  
*Recovery.*

In 1862 I attended Mary G., æt. 33, the wife of a miner, the mother of several children. She complained of a painful swelling over the region of the gall-bladder. On examination I found a tumour about the size of a small orange, which was prominent, soft, and evidently contained fluid. Pressure on it caused considerable pain. Her general health was very good, and all the functions of the body were healthily



performed. At first I inclined to believe it to be a chronic abscess in the sheath of the rectus muscle, and proposed opening it. She, however, declined, and for some time I lost sight of her. The next time she sent for me I found she had been an inmate of the Taunton Hospital, where also opening the swelling had been proposed. It was now more prominent; the skin red, looked thin, and was evidently on the point of ulceration. She again firmly refused to have it "touched" at present, as it now caused no pain. On my next visit, three days after, I found it had spontaneously opened. There was a free discharge of thin unhealthy pus mixed with some bile, and several gall-stones had passed through an opening the size of the tip of one's little finger. The prominence had now disappeared, and there was no constitutional disturbance. The gall-stones were of various sizes; some as large as peas or small horse-beans, others very small. The wound kept open for several months, at times almost healing; then again opening, and allowing a stone or stones to escape, at which times there was more or less pain; altogether between seventy and eighty calculi came away. All this time her health kept good, and there was, I may say, no inconvenience, except when a larger calculus than usual was making its way out. At last the wound entirely closed; and for the three years following, during which she remained under my notice, her health remained unimpaired. Early in the case I managed to secure some of these calculi; but as her friends considered them curiosities, they were bespoken beforehand, and carried off and distributed as soon as they escaped.

CASE IX. *Abscess of liver, opening into pleura. Paracentesis thoracis. Recovery.*

During the severe winter of 1854-5 I attended Mr. H., a farmer in Devonshire. After long exposure in snow he had some rigors, followed by slight jaundice, with great pain over the region of the liver, which could gradually be seen to enlarge. Slow fever of a low type, severe rigors, and intense prostration came on; the two former of these became periodic—so much so, as to induce both myself and Dr. Edwards, who was attending the case with me, to look on it as an exceptional one of intermittent fever. These symptoms continued for some weeks, quinine, &c. seeming to have no effect. Meantime the patient became much emaciated, and œdema of the lower extremities took place; breathing became difficult, the countenance anxious, and a semi-recumbent posture on the right side was alone bearable. The lower right chest became dull, and it was evident its space was encroached on by some pressure from below the diaphragm; but no tenderness or fluctuation could be detected; in fact, at this time the prominence over the liver had rather diminished. Things continued much in this state up to the middle of April 1855, when suddenly one day, after coughing, he expressed his belief that something had burst in him, and became faint and cold, and rallied only after the liberal exhibition of stimulants. After this, from ægophony, and other symptoms, fluid in the right pleural cavity was clearly diagnosed. Dyspnoea was very urgent, and all symptoms most distressing; so at once, in conjunction with Dr. Edwards, I pro-

ceeded to tap the chest; which I did between the sixth and seventh ribs, drawing off six pints of very foul fetid pus, taking care not entirely to empty the cavity at once. Marked and immediate relief followed; and two days later Dr. Edwards drew off two pints more; a week after taking away another pint, which quite emptied it. Respiration was again rapidly reëstablished throughout the whole of the right lung; the liver could not be felt below the edge of the costal cartilages. The man quickly picking up health, weight, and spirits, became so far recovered, that by the end of June he was enabled to assist at his hay-making; and he is now alive and well, showing no traces of his formidable illness.

CASE X. *Idiopathic tetanus, caused probably by eating underdone pork.*  
*Recovery.*

During hot weather in the month of June, S. G., a robust young miner, after a long and very hard day's walk, during which he had drank many pints of sour cider, made a hearty supper off underdone pork, not properly masticating the same. Having gone to bed and slept soundly for some hours, he was awakened by violent pains in the calves of both legs, which quickly extending through the muscles of the thighs, attacked those of the back; and finally the muscles of the upper limbs, chest, and head and neck became affected. On seeing him at 9 A.M., I found most of the muscles of his body in a state of tonic spasm. There was opisthotonos. The muscles of the face and lower jaw were contracted and relaxed alternately, his countenance deadly pale and much contorted, large beads of sweat standing on face and forehead; pulse small and thready, and very rapid; manner extremely anxious. I at once thought I had before me a case of traumatic tetanus; and some chloroform being at hand, I forthwith caused him to inhale some sprinkled on a handkerchief. As soon as he was partially under its influence, immediate and most marked relief was manifest; the countenance assumed its natural expression, and all the muscles became relaxed and quiet. On examination finding he had sustained no injury of even the slightest kind, and his friends corroborating this, and informing me of his fifty-mile walk, terminating in his hearty unseasonable supper of the night before, I hoped idiopathic tetanus; and on his partial recovery from the chloroform gave a powerful emetic; this acted freely and quickly. I followed this up by a ten-grain dose of calomel; and then left him relieved, sweating profusely. On seeing him again towards evening, I found that during my absence he had had two or three attacks of spasm, each lighter than the one which preceded it; and these affecting one side of the body only at a time. It was remarkable that each of these attacks came on immediately on his awaking from sleep. Here fortunately was an end to the formidable symptoms; for after a very free action of the bowels and a good night's rest, I found him next day cheerful and altogether doing well; complaining principally of great prostration, and the feeling "as if he had been well beaten all over with sticks." This latter sensation no doubt he was a good judge of, as he was rather a celebrated cudgel-player; hence perhaps his comparison.

About the same time I had two cases of traumatic tetanus, both fatal, which enabled me to compare the symptoms in the three; and for severity, the idiopathic in the commencement quite equalled the traumatic; but I noted this difference: chloroform in the one seemed to give permanent relief; whereas in the others it afforded but temporary ease, and had to be almost continuously re-applied.

CASE XI. *Hæmorrhage from internal carotid artery, following scarlet fever. Death.*

In the autumn of the year 1864, a very general and most severe epidemic of scarlet fever prevailed in my practice. Many cases were of a very malignant type. I had many deaths, and these at all stages of the disease; some even as shortly as thirty hours after showing symptoms of sickening, and before even the rash had appeared. In several who finally recovered, extensive suppuration of the glands of the neck took place, and many patients barely survived. In the following case death took place from arterial hæmorrhage. The patient, a strong, robust, healthy girl, æt. 14, was very slowly recovering from a most severe attack of this disease, when rather suddenly the glands on the right side of her neck began to suppurate; and within a few days there was a complete hole through the neck into the throat; and when fluids were swallowed, large quantities of them escaped through the wound; which latter rapidly spread, and presented a frightful open sloughing surface—the deep vessels, nerves, and muscles being exposed. Some free bright bleeding took place; and I cautioned the friends to keep her quiet, and to let me know as quickly as possible should it recur. Next day, quite suddenly, a great gush of blood took place, and the girl was dead in less than two minutes. I made a post-mortem examination as well as the parts would allow, for they were in a dreadful state; but I was enabled to satisfy myself as to the locality of the lesion by blowing air into the arteria innominata, which clearly passed out through an ulceration in the walls of the internal carotid artery. I believe it is generally held, that in fatal hæmorrhage from extensive suppuration of the glands and other parts about this region, the blood is from the jugular vein; but in this case it was clearly arterial; hence perhaps its rapid fatality.

CASE XII. *Premature birth. Short period of gestation.*

On the 13th December 1868 I was called in by a medical friend to give an opinion on the following case: Mrs. J. D., æt. 23, was married on the 11th of April 1868, and came to reside near my friend. At 1 A.M. on the 1st of November of that year, he was called to attend her in her confinement, she not having previously engaged his services. The labour was quick and quite natural, and about 4 A.M. a female child was born. On leaving the house, the nurse asked him casually his opinion as to the period of gestation of the baby. His reply was, "Perhaps not quite full time, but between eight and nine months." On the visit in the morning, he made a more careful examination, and found "a well-nourished healthy female child, which cried strongly;" this it also did at the time of its birth. The skin was firm, healthy in colour, and



well developed, having no wrinkles in it; the growth of hair considerable, and in quantity and length about the average of a mature nine months' child; the nails were firm, but not quite fully grown down. It took the breast freely at once, in which there was an early and full supply of milk; and from its birth on the 1st November to my seeing it on the 13th December, gradually grew, fed, and slept well. On this date I found the parents both strong and healthy people, rather below than above the average adult size. The mother accounted for the early birth of her child, for its coming "before time," as the result of her having had a fall downstairs a fortnight previous to her confinement; but of this fall there was no other evidence than her own word, as she was in the house alone at the time, and then did not mention the accident to any one. The father denied the possibility of any other hypothesis than that it was an unusually well-developed child and premature, and held that the medical man must have been in error when he pronounced the child to be eight months at least. But as he held a post involving a certain amount of moral standing, his employers called on him to account for the viability of the infant in contradistinction to the expressed opinion of the medical man; on which my friend received a strong letter, threatening immediate legal proceedings unless his opinion was retracted. The child was not weighed at the time of its birth, the medical man not thinking any farther question would arise. Having heard these particulars, I examined the child, now 246 days after the parents' marriage. It was as well developed and nourished as any child born at the end of the ninth month I had ever seen, and its weight was eight pounds thirteen ounces. For my part, I supported my friend's opinion, viz. that at the time of birth the child had attained more than 203 days of gestation, and for the following reasons: It at once cried tolerably strongly, soon took the breast freely, its hair and skin showed no signs of premature birth, and the nails but slight signs. Moreover, the mother had a good supply of milk at once; it had grown well, and at 246 days after marriage it had attained a weight much above the average of even 272 days, viz. seven pounds; and finally, I can find no recorded case in which a child has survived fourteen days which had been born under 205 days of gestation, where the development at the same time had not been very deficient at birth. In the celebrated Kinghorn case (Taylor's *Jurisprudence*, p. 618), where a child born 174 days after the marriage of its parents lived some months, it was said in evidence to have been at birth very weak, and was decidedly immature. I may mention, that soon after my examination the parties removed from the neighbourhood, and no more was heard of the action for defamation. During the same year I had a patient, who, whilst suffering from a severe attack of pleuro-pneumonia, was prematurely confined at the end of the fifth month of gestation; and the child lived for two hours, and during the first quarter of an hour even gave faint low moans or cries. This weighed one pound twelve ounces, and was about eleven inches long. I have gone into the medical aspect of the case only. There was other evidence, such as hiring a nurse, preparing clothes, &c., all of which tended to support our opinions.

CASE XIII. *Bronchocele. Sudden death.*

I was attending, in 1860, R. H., æt. 14, a strong, hearty, robust country girl, who was the subject of a bilateral bronchocele, which had been of most rapid growth. Early one morning in May she was brought to me by her mother, who stated she had had no sleep all night from difficulty of breathing and pain in her head. Her condition was as follows: Pulse 108, labouring; skin cold and bedewed with perspiration; countenance almost livid and most anxious; but respiration not much impeded; pupils dilated, and eyes very prominently protruding. Complained of intense pain in her head, and a sense of constriction about her throat. There was also slight hiccough. I cupped her over the bronchocele; but finding I could get but little blood, I bled her from the arm, withdrawing about sixteen ounces. Her pulse and countenance changed, and she expressed herself relieved. I prescribed warmth to be applied to her extremities, and a stimulating mixture. She then walked to her home, a quarter of a mile distant, and I was called into the country. On my return, four hours after, I found she had died very suddenly, and before even my partner, who had been sent for, could reach her. Her mother informed us, that after she reached home, pain in the head returned with increased violence; she became insensible, and dropped off her chair dead.

A post-mortem examination disclosed: Body well nourished, and all the internal organs healthy, except the lungs, which were much congested, and the right heart was engorged with dark fluid blood. There was a bilateral bronchocele of moderate size, and which did not appear to press much on the trachea, but extended laterally considerably, and overlapped both common carotid arteries; brain and membranes intensely congested, both on its surface and throughout its whole substance; sinews full of dark fluid blood. Ventricles contained much fluid, as did also the arachnoid. At the time, I thought the immediate cause of death was this state of brain, caused by pressure of the enlarged thyroid on the large vessels of the neck; but from the great congestion of the lungs and right side of the heart, I have since thought pressure on the recurrent laryngeal nerve may have been even the primary cause of death. An inquest was held, and the coroner, a medical man, stated that during his long experience it was the only case of the kind he had met with.

CASE XIV. *Large calculus in kidney. Calculi in prostate. Abscess. Death.*

Joseph S., æt. 53, a porter, in September of 1868 came under my care. He was suffering from symptoms of stricture of the urethra, for which he had more than once been an in-patient at Guy's Hospital. He also informed me that he had been there told that he had stone in the bladder. With some difficulty I passed a sound into the bladder, through a very diseased urethra, containing at least two tough strictures; but after careful sounding, I could detect no trace of stone. At this time his condition was emaciated, low, and weak; the urine loaded with lithates, and frequently containing both blood and pus. There was great pain in the loins, especially in the left, and towards night

he became hectic. His symptoms became worse, and in the second week of October he took to his bed. Before this, at his earnest request, I sounded his bladder a second time, with the same result as before. The pain in his back became almost unbearable, and he required strong opiates to get any sleep. Sudden and alarming attacks of syncope came on; the stomach became irritable; and urgent vomiting set in, with complete suppression of urine, for no less than four days; and he sank, comatose, on the 18th October. I made a post-mortem examination next day, and found the body much emaciated; heart contained clots in the right auricle and ventricle; and these extended into the pulmonary arteries, and were evidently of some standing, as they had quite lost all colour of blood. These accounted for the distressing attacks of syncope, palpitation, and dyspnoea some five days before death. Both lungs were much congested throughout, especially posteriorly. The right pleura contained about ten ounces of serous fluid. Liver was much enlarged, and showed the early stage of cirrhosis. Stomach and intestines empty and collapsed; spleen enlarged. Kidneys. Right: about double its normal size; structure healthy; capsule non-adherent. Left: eleven inches long, completely degenerated, and contained a number of small sacculated abscesses; its cortical structure could not be distinguished from the medullary; while its pelvis and calices, together with the commencement of its ureter, was completely filled with a calculus, which unfortunately broke as it was being removed. It had moulded itself to the shape of the interior of the kidney, which it seemed to expand before it as it had enlarged. If accurately put together, it would have been found to resemble in its irregularity a large Jerusalem artichoke. The ureter was degenerated into an almost impervious fibrous cord. The bladder was much thickened, roughened internally, was empty, and contained no stone. The prostate was very much enlarged in all its lobes, and contained, seemingly imbedded in its substance, from twenty to thirty calculi, varying in size from a millet-seed to that of a large pea. The escape at times of some of these must have led to the belief that he had stone in his bladder. The urethra contained two contracted portions: one immediately in front of its membranous portion, and the other behind the fossa navicularis. The whole would have made a most excellent preparation; but I regret to say, my non-removal of the smallest portion was the only condition on which I was allowed to make the examination.

CASE XV. *Repeated arm-presentations. Death, probably from ruptured uterus.*

On the 3d of February 1857 I attended Mary S., a very healthy, tall, and well-formed woman, wife of John S., an unusually robust, stalwart farm-labourer. This was her sixth confinement; and I had previously attended her twice in confinement, at each of which she had had arm-presentations, and great difficulty was experienced in delivery, both children being born dead. This was again a similar case, but attended this time with even more difficulty than previously, as she had been ill three days before she sent for me. Having succeeded in turning and



delivering, I this time saved the life of the child by the then new Dr. Marshall Hall's ready method (vide his work on Drowning, p. 131). I was informed, both by herself and her former medical man, that in her first three confinements she had twice arm-presentations, and once placenta previa. In the year 1859 I again attended her, when for the seventh time she had an unnatural labour, viz. presentation of the nates. The child was born alive, and both it and the mother did well. Soon after this, she removed from my district; and in the year 1861, again, for the eighth time, was pregnant, when she now fell under the care of an unqualified medical man, who had been appointed by a board of guardians to *misattend* the poor of a large district. I know no more direct particulars, but that the poor woman, after four days' suffering, died undelivered, the party in attendance sending, but too late, for professional aid. There was no post-mortem or coroner's inquest, and I only heard of her death some days after she was buried. This case was very peculiar, inasmuch as a strong well-formed woman had seven (and would probably, if properly treated, have had eight) consecutive preternatural labours; and the woman herself accounted for the fact of her always having "cross-births" from the circumstance that her husband returned one night from a poaching expedition pursued by the keepers, which much alarmed her. This was during the fifth month of her first pregnancy. Her children were invariably large and well formed, and those who lived were strong and healthy.

CASE XVI. *Malformation. Maternal influences.*

In the year 1857 I attended in her fourth confinement Mrs. V., the wife of a small farmer. She was a strong, healthy, but rather small woman. Her labour was quick and natural, and after the birth of the child her first question was, "Is the child all right?" On examining, I found it was not right; it had a deficiency of the greater part of the forehead, and about its middle was one eye, there being no external appearances of its fellow. The child was otherwise well formed, and it both breathed and cried strongly during the first part of the half-hour it lived. I was only allowed to make a superficial examination, so I do not know if the second orbit was altogether missing, or if there was only external obliteration of it; but at the time my impression was, that it was a true malformation, and not simply an arrest of development. I now for the first time heard the history of Mrs. V.'s married life. When she was about three or four months pregnant with her first child, her husband one day came suddenly into the house with his hand over his face, exclaiming, "Don't be frightened, but the cow has knocked my eye out." For a few minutes she felt sick and faint. The accident was not so serious, there being only a small wound, which soon healed, and she thought no more of the matter. At the proper time her child, a male, was born, and her labour was perfectly natural. But, to use their expression, "the child only had one eye, and was exactly like the child I saw." It lived only a few minutes; she then had no medical attendant. After this, and between the birth of the first male child and my attending her in this instance, she had two girls born, who lived,

and were strong, hearty, and healthy, without any bodily or mental deficiency. In 1859 she gave birth to another girl, which lived, and in all respects resembled its sisters. In the spring of 1862 I attended her in confinement for the third time, when a male child was born, whose body and extremities were well developed; but one side, and one side only, of both head and face were no larger than those of a fœtus of from four to five months' gestation; the other side corresponding with the body. It did not cry, and only gave a few convulsive gasps. I was allowed to make a cursory examination, and found a perfect arrest in development in the bones of the right side of the head and face; the parietal bone, for instance, having its central point of ossification only, and that about the size of a sixpence, the rest being membrane; the corresponding half of the brain was likewise undeveloped. Now I lost sight of my patient, as during this same year she, her husband, and girls emigrated to New Zealand. I think this case most interesting, as showing: first, that strong impressions may affect the offspring beyond the child of which the mother is then pregnant; and secondly, that either sex alone may be by them affected. As an example of the first, to a certain extent, we may look on those cases of supernumerary fingers, toes, thumbs, &c., which we occasionally see run through all the members of a family, or where several consecutive children have been the subjects of hare-lip or cleft palate. But I have neither seen recorded or heard of another case in which one sex only of a family has been subject to malformations. The mother told me, that during her pregnancies after the first her mind had not knowingly reverted to the accident to her husband; nor during the latter pregnancies had she had any fright or fresh cause for alarm or anxiety.

CASE XVII. *Spina bifida. Tapping. Injection. Recovery.*

In 1863 Mary B., æt. 18 months, was brought many miles from the country to me, and she appeared well developed and healthy, except in her lower limbs, which were small and flabby, and on which she had never walked. In the lumbo-sacral region was a spina bifida, equal in size to the child's head, irregular in form, attached in the mesian line, and overhanging the back and nates. The skin was in patches livid and purple, and seemed so very thin, that in many places it was evidently on the point of ulceration; there was also great chafing where the two skins were in apposition; and though the child's general health had up to the last week continued tolerably good, she had nevertheless several times had convulsions within the last day or two, and there was great difficulty in preserving cleanliness, and in obtaining an easy position for rest and sleep. There had been a severe convulsion on its journey to me. Still, after these unfavourable and urgent symptoms, on consultation with my partner, we agreed, that as the child would run the risk of rupturing the sac during the journey home, and possibly have more convulsions and die, it would be best, with the parents' consent, to tap the sac; to which I added the proposition to inject it, seeing that matters could scarce be made worse. The urgency being pointed out, and consent obtained, I passed a very fine trochar into the lowest

part of the tumour, on one side and where the skin was moderately sound, and drew off twenty-five ounces of clear fluid. I then injected about twenty drops of the tincture of iodine in about three drachms of distilled water (the quantities I quote from memory), which I allowed to remain, withdrawing the canula, and covering the small wound with collodion; over this was placed a light pledget of lint, secured by a bandage. A little weak wine-and-water was given, and the child was taken to its home, a distance of twelve miles, over a rough road. Not hearing of my little patient for some days, I feared the worst; however, at the end of the week the father came to me, saying the child was doing well, and requested me to see it next day at the house of a relation, about half-way between us. Soon after it left my house convulsions came on, which continued more or less for three days, the child refusing all food during this time. On the fourth day the convulsions, after becoming weaker, altogether ceased. Food was again freely taken, and good sleep obtained. On seeing it on the eighth day, I found the skin, which had formed the outside covering of the tumour, had shrivelled up into a mass irregular in shape, and about the size of one's fist. The bandage and pad were left off, and directions given that the patient should be kept as quiet as possible. During the first week small doses of calomel were given; after this no medicine at all. I saw her again a month after, when her legs had gained strength and size, and she began to attempt to walk. From this time up to 1866, when I last saw the case, all had gone well; the skin had drawn itself up into a brown hard irregular lump, which seemed to have adhered to the sides of the orifice in the spinal canal; there was no pain in it; and the child was as fine a one as could be seen of its age. I hold that this must have been one of those cases in which the posterior roots only, if any portion, of the cord entered into the sac.

CASE XVIII. *Hæmaturia. Death.*

On the 25th November 1868 I was sent for to attend Mr. J. W. W., æt. 43 years. I found him in great pain, suffering from all the symptoms of acute lead colic; and then had from him the following history of his case. He had enjoyed most excellent health up to about three years since, when, after rather severe exercise and some pain in the lower part of his back, he perceived some blood in his urine. This going on for some days, and the treatment of his usual medical attendant proving ineffectual to arrest it, he consulted Dr. Bence Jones, who prescribed gallic acid in full doses. This the patient described as acting like a charm; for after a very few doses all bleeding ceased; and on returning from a month's trip in Switzerland, he resumed his professional work as well as ever. From this time his general health continued good; he rode on horseback, hunted, and lived altogether as heretofore, which was what would be usually termed tolerably free. In 1867 he had another attack, and this time blood was passed in much greater quantities than in the former one. He again saw Dr. Bence Jones, and also Dr. John W. Ogle. Various remedies and plans of treatment were adopted, and the hæmorrhage seemed finally to yield to



small doses of acetate of lead with opium. After another holiday he resumed business, apparently in his usual health and spirits; but, to use his own expression, he never felt himself again the same man. On my first visit to him he was suffering from his third and last attack, and had been ill about a month; he had consulted Dr. J. W. Ogle and Dr. Bence Jones. The old remedies, together with others, had been re-tried; and Dr. Ogle, finding that the disease still progressed, put him on a course of lead and opium; under which the patient, becoming alarmed at the great quantities of blood he was losing, took lead pills to the extent of giving himself violent colic and blue-lead gums: altogether over ninety grains of lead had been taken. In two or three days, the lead symptoms having under appropriate treatment almost disappeared, I turned my attention to the hæmaturia. After passing a sound through a slight old stricture, causing little pain, I found, after careful examination, no stone in the bladder, neither could I detect any tumour or foreign growth in the bladder, urethra, or prostate; and there was no tender spot at any point, nor did any blood follow the withdrawal of the instrument. The urine at times during the day was voided quite clear, and in this I could then detect under the microscope a few, and but very few, octohedral crystals of the oxalate of lime; but I never at any time found any epithelial or granular casts or blood-corpuscles. There was slight loss of flesh, and the muscles were flabby; skin much blanched, spirits and appetite good, with little or no pain. During the night he passed urine three or four times, and almost always with more or less difficulty, from the blood becoming partially coagulated. But there was no pain on percussion or pressure over the kidneys, bladder, or prostate, nor any swelling in the perinæum. The blood gradually increased in quantity, although for a day or two it would almost entirely disappear. I used all the remedies I could think of—alum, gallic acid, tannin, turpentine, digitalis, matico, iron in all its forms, &c. Of these, turpentine alone, and that but for a short time, appeared to exert any influence. He again saw, with me, Dr. J. W. Ogle, together with Dr. Bence Jones and Mr. Prescott Hewett: with their consent I then tried injections. After washing out the bladder—an affair of no small difficulty—I injected on four different occasions eight ounces at a time of a solution of sulphate of alum, two grains to the ounce. The first two injections much diminished the quantity of blood, and for the first twenty-four hours after injecting there was no loss. The others had not so great an effect. The loss of blood on some mornings was most copious. My patient gradually grew weaker, and being a man of the firmest temperament, nothing, not even my broadest hints, could arouse him to a sense of his danger. He continued his professional work, and even went a journey at the end of the year. On his return, on the 1st of January 1869, his distress became very great, from blood having coagulated within the bladder, which was removed with difficulty by repeated injections. On the 2d January a greater loss than ever took place, and after this he began rapidly to sink; and now for the first time would he believe himself to be in any danger. He died the same night from hæmorrhage; and although Dr. J. W. Ogle and myself used

every argument to obtain leave from the relatives to make a post-mortem examination, this was not allowed; in the absence of which I came to the conclusion, that this was a case of villous growth, of perhaps but small size, within the bladder, which occasionally took on an hæmorrhagic character, for there was no evidence of the blood having come from the kidneys or the urethra; there was no stone in the bladder or in the prostate; and the continued good health, with the absence of pain or loss of flesh up to time of death, contraindicated the existence of malignant disease.

CASE XIX. *Death after swallowing a halfpenny.*

In 1865, a child, æt. about 5 years, was brought into my house from a distance in the country. having whilst at play an hour or two previously slipped a halfpenny (one of the old large copper ones) from its mouth into the gullet. The child had struggled violently, and there had been repeated but useless efforts at vomiting, and it complained of being choked. I was not at home, and my temporary assistant, without attempting to withdraw the foreign body, managed, with some amount of force and great difficulty, to push it with a probang into the stomach, the friends taking the child home in the belief that all was right. On the third day after, I was sent for to the child, and found it with all the symptoms of most acute enteritis. The friends, who had been cautioned to look out, reported that the coin had not been voided. In spite of the most active treatment, the case grew worse; quantities of bright blood were passed, and there was blood in the matter vomited; and the child died on the twelfth day, after great suffering. As far as could be ascertained, up to death no coin had passed. I made a post-mortem examination, and found as follows: The lower third of the œsophagus showed signs of acute inflammation; the mucous membrane was of a bright-red colour, soft, easily detached, and in some places ulcerated. The upper part of this tube, together with the pharynx, were healthy; the stomach was inflamed, but not highly so, except at and towards the pylorus, where the appearances were much the same as those in the lower part of the œsophagus. The whole track of the small intestines, from the pylorus to the ileo-cæcal valve, was more or less in a state of active inflammation, with here and there patches of ulceration of the mucous membrane, which was everywhere soft and pulpy. The large intestine was collapsed, and contained only a small quantity of mucus mixed with blood. The most careful search of the whole track of the alimentary canal failed to discover the coin, nor had it escaped into the peritoneum through ulceration; so I presume it must have escaped unobserved by the friends. The mucous membrane and the contents of the intestines, on being tested for copper, gave every evidence of its presence in considerable quantities. There can be little doubt but that the causes of death in this case were twofold—first, the mechanical injuries to the œsophagus, pylorus, and small intestine by the passage through them of a large halfpenny; and secondly, poisoning by copper, the result of some decomposition of the coin during its passage. In a similar case in a boy, I made efforts, and successfully, to extract a coin

(I believe a halfpenny) from the cesophagus, which no doubt is the proper surgery.

CASE XX. *Obstinate skin-disease following arsenical poisoning.*

G. M., æt. about 13, a strong country boy, strolling with some other boys in the fields, came upon the remains of a bottle of sheep-dipping composition which had been left in a hedge. Thinking they had found some cider, M., the eldest, took a good mouthful, not discovering his mistake till he had swallowed it. A few minutes after, violent vomiting followed, and happily for him, before he got home probably most of the liquid had been ejected; for this I found, after inquiries, contained soap, sulphur, and, together with some other ingredients, a large proportion of arsenious acid. On his reaching home I was sent for, and found him suffering from all the symptoms of arsenical poisoning, which, under the treatment of emetics and emollients, &c., gradually passed away; and in the course of a fortnight the boy was again at school, and seemingly in his usual health. Now comes what to me has always been a puzzle. About the end of a month from his swallowing the arsenic, and a fortnight after he thought himself well, he was brought to me with his face, head, hands, and feet swollen, the surface of his whole body of a bright-red colour, not unlike the early stage of the eruption of scarlet fever. There were no constitutional symptoms whatever. After a few days the skin partially desquamated, and was tender to the touch; and this was followed by an attack of psoriasis, the most complete I ever saw, for it extended over nearly the whole body, the face not even excepted. At the same time the hair on his head, together with the eyebrows and eyelashes, fell off, and the nails loosened and followed suit. It is remarkable, that neither the patient or any of his family had previously been the subject of skin-disease; in fact, he had always been strong and healthy. His condition now was thin and anæmic. I put him on a good and liberal diet, combined with cod-liver oil, tonics, and, I believe, every medicine I had ever seen or heard recommended for squamous skin-disease, arsenic excepted, of which latter I thought the poor fellow had had a sufficiency. When nearly twelve months had elapsed, and the case showed but trifling improvement, and that only as regards the hair and nails, which nature was making some, although but feeble, efforts to restore, I thought of the old adage—viz. to try a hair of the dog that bit you—and consequently put the lad on a course of arsenic, giving him five minims of Fowler's solution thrice daily in sarsaparilla, &c. The effect was something wonderful. Hair and nails grew most rapidly; his flesh, strength, and weight increased; the scales fell off, and healthy skin took their place; and in about two months he was again in his usual health and strength; his friends and parents remarking, that both in person and character the lad was quite changed, and even his hair did not re-grow of the old colour. The skin-disease never returned. I can call to mind but a very few cases in which arsenic, with tonics and good diet, failed to cure the most obstinate forms of squamous skin-disease, even when the patients were anæmic and badly nourished; and in this



case I should at once have put the lad on arsenic, had I not had every reason to believe that that mineral was the cause of his disease.

CASE XXI. *Malignant disease of pericardium simulating aortic aneurism.*

On the 25th December 1868, I saw W. J. S., a clerk at a railway station, in consultation with D. Wheeler, Esq., of Chelmsford, and from that gentleman had the following history of the patient: His age was 35 years, and up to the last few months he had enjoyed uninterrupted good health, when he came under treatment for what he supposed was a common cold, with loss of voice; there was also slight cough, with frothy expectoration, great pain after taking food, sometimes followed by vomiting; considerable fixed pain extending from the sternum through to the back; any excitement caused palpitation of the heart, which latter symptom he ascribed to, as it came on immediately after, lifting a heavy cask. From his first treatment to the date of my seeing him the leading symptoms were—occasional loss of voice, with at times violent dyspnœa, almost threatening suffocation; now and then a small amount of blood mixed with mucus was expectorated—this gradually became thicker and more tenacious; general anasarca came on, which was most variable in its extent, and this at times almost entirely disappeared. The pulse was small and variable, and in frequency ranged from 90 to 110. The countenance was at first pale and distressed, and gradually assumed a dull leaden expression. The recumbent posture was with difficulty maintained, especially if attempted on the right side; when lying, the favourite position was on the left side, with the face partially downwards; sleep much disturbed by troubled dreams. He took nourishment fairly, but expressed himself as feeling no benefit from it. When I saw him with Mr. Wheeler, his bad symptoms were increasing. There was great dulness over the whole cardiac region and beyond it. There was now a very loud systolic bruit continuous, and this had been heard for some time previously, but was occasionally absent. There was great and general anasarca, great dyspnœa, and the veins on both sides of the thorax at the lower part were varicose, and distended with dark blood. Our prognosis was most unfavourable; our diagnosis was aneurism of the arch of the aorta, causing much pressure on the vessels, roots of the lungs, and nerves. In the former we were correct, for the patient died early in 1869, without any material change of symptoms; in the latter we were at fault, as a post-mortem examination showed. After much difficulty leave was obtained to examine the chest, and the chest only, and that under promise of not removing the slightest portion.

*Post-mortem examination.*—Body very œdematous and pale. Chest and abdomen covered with large tortuous varicose veins; on the sternum, with the costal cartilages being removed, a large mass came into view in the thorax, occupying the whole of its centre, encroaching laterally on each pleural cavity. The right lung was more compressed than its fellow, and its pleural cavity contained a few ounces of light-coloured serum. Both lungs, with the exception of being some-

what congested, were healthy throughout. The heart was normal in size, and its interior and valves were perfectly healthy; its exterior surface quite smooth and healthy. The mass was found to be the pericardium above where it was reflected over the roots of the lungs and large vessels behind them. It was from two to three inches in thickness, and in front at the same point it was from an inch and a half to two inches; it had all but obliterated the cavities of the mediastina, compressing, but easily separated from, their contents. As before stated, it had surrounded the roots and encroached on both lungs laterally. As the pericardium was traced downwards towards the diaphragm, the thickness of the mass grew less; and where it is reflected over this muscle, it occurred only in some detached patches, resembling the fat in the omentum. The disease did not appear to involve the serous coat of the pericardium, but to be confined to its fibrous layer. The roots of the lungs and the aorta and pulmonary artery could easily be separated from the diseased mass; they ran through and were compressed by it, but were not involved in its substance. In the upper and thicker parts the disease on being cut into was found to consist of a dense yellow fibroid growth, firm and gristly under the scalpel; and in its substance here and there were softened patches like small abscesses, containing a creamy material mixed with dark melænic colouring-matter. There was no absorption of the vertebræ or of the sternum. Mr. Wheeler so scrupulously carried out his promise to remove nothing, that there was no chance of even examining the growth microscopically; but there could be little doubt of the malignant character of the growth; and there remained none in the minds of the three of us who were present at the examination, that this was a genuine case of primary cancer of the pericardium, beginning above and spreading downwards. The loss of voice from pressure on the recurrent laryngeal nerve was an early symptom. I regretted not being able to make a farther examination; as had we then found deposits in no other organs, we should have been able with more decision to have called it primary cancer of the pericardium.

JAMES NICHOLLS, M.D.

#### XIV. TWO CASES OF EXCISION OF THE SCAPULA, WITH REMARKS.

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THE removal of the scapula, without the sacrifice of the arm, is an operation of such comparatively recent origin, and the instances in which it has been performed are so few in number, that I venture to think the particulars of the two following cases are not unworthy of record.

CASE I.—Charlotte Penn, æt. 16, a delicate-looking girl, was admitted January 16th, 1865, into the hospital under my care. About twelve months previously she began to feel severe aching pain in her right shoulder, which first drew her attention to the part. She then noticed a swelling over the scapula, which increased very gradually, but to no very great extent. She suffered a great deal of pain in it occasionally. On admission there was observed a circumscribed swelling over the infra-spinous fossa of the scapula. It felt exceedingly hard, was quite smooth on its surface, and apparently firmly adherent to the bone, and moved with each movement of the scapula. It was evidently not bony, but somewhat elastic, and apparently covered by the deeper muscles. Its hardness and elasticity appeared due to its being bound down by fascia and muscle. An exploratory trochar was introduced into the mass a few days after admission, when some bloody fluid with something like purulent matter escaped. Pus-cells were found in the fluid when placed under the microscope. Feb. 1st. She has been constantly sick since her admission. She was placed under the influence of chloroform, and an incision made into the tumour. A finger introduced into the wound felt the greater portion of the dorsum of the scapula rough and diseased. Bloody fluid, slightly tinged with sero-purulent matter, escaped through the incision, as if the result of broken-down tissue of some soft growing mass. A finger could be readily moved about through a small space filled with a soft and easily lacerated substance. 3d. She appeared to be very ill. There was much discharge from the wound, and much tenderness over the swelling. The vomiting still continued, though with less severity. 12th. The sickness has subsided. She appears better, and is more cheerful; but there is an immense discharge from the wound. 14th. As much matter was retained within the wound, and gave rise to some swelling and great tenderness, the opening was freely enlarged, and the incision



dressed in from the bottom. 19th. Appears much better. Has entirely lost her former anxiety of expression, and begins to gain flesh. There is still very great discharge from the wound; but the latter is clean and healthy-looking. A proposal to remove the scapula at this period was objected to by the mother of the patient, as well as by the patient herself. 26th. Is improved in most respects, with the exception that there is still much discharge, and that the mass is slowly increasing. She continued in much the same condition, with a gradual increase of the tumour, till the 12th of March, when she was seized with an epileptic fit, the first she had ever suffered from, and in which she was unconscious for some twenty minutes. She was again similarly attacked on the 2d April. The wound had been very unhealthy, and almost phagedænic in character. She was very low, the mass increasing in size, and the discharge very abundant and foul. By degrees she again began to improve in health, and the wound assumed a more satisfactory condition, till the 27th of May, when she had considerable hæmorrhage from the tumour. This was arrested by the application of styptics and pressure; but she became very low and faint from this loss of blood. She continued in much the same condition, with much offensive discharge, increasing growth of tumour, much distressing sickness at times, and very considerable suffering, till at last she expressed her anxiety to have the mass removed. The tumour had by this time become very large. July 27th. She was placed under the influence of chloroform. Mr. Holmes compressed the subclavian artery for me until the operation was completed.

A transverse incision was made along the upper border of the scapula from the posterior angle to the extremity of the acromion. From this incision a perpendicular one was commenced at about two inches from its inner extremity, and carried down to the inferior angle. The posterior flap was then dissected back towards the vertebral column; and the posterior edge of the scapula, with its inferior angle, separated from the deeper attachments. The bone was then turned upwards and outwards, so that its under attachments should be freely relieved before those of the anterior border should be interfered with. A third incision was now made from the transverse one, commencing within two inches of the acromion, and carried down to meet the first perpendicular one at its lowest point. Thus a large piece of skin, much ulcerated, and lying over the middle of the tumour, was isolated by these incisions, and ultimately removed with the diseased mass. The outer flap was now rapidly separated from the tumour; a finger passed under the sub-scapular artery secured it while it was divided and untied. The acromion was sawn through near its base, and left attached to the clavicle. The scapula was again turned upwards, and its separation readily effected by cutting through the capsule of the shoulder-joint and the muscles surrounding it. While this was being done, and in consequence of the scapula being pushed well over towards the clavicle, the coracoid process broke off, and remained attached to its muscles, and thus liberated the scapula at that point. The coracoid process no doubt broke off thus easily in consequence of the youth of

the patient. Very few vessels required ligature, and comparatively very little blood was lost. It was considered best to leave the acromion, as it appeared quite healthy, as it would serve to lessen the disfigurement of the shoulders, and assist to form a better protection for the head of the humerus. The articular cartilage covering the head of the humerus was not interfered with.

Though a good portion of skin was removed with the tumour, there was ample flap left to cover the exposed surface perfectly. The flaps were brought together by sutures, and the arm fixed to the side with a bandage.

The examination of the tumour after removal showed a very large mass, which filled up the whole of the inferior fossa, and projected below the inferior angle of the scapula. The bone forming the fossa was perforated by the tumour, which was prolonged anteriorly through the perforation, and could be seen protruding into the subscapular fossa. On passing a finger into the centre of the tumour, the bone could be felt exposed and rough, and covered with a number of sharp spiculæ of osseous tissue. The portion of skin removed with the tumour was extensively ulcerated. The mass itself consisted of an irregular ragged cavity, with walls at least an inch thick. Its tissue, examined under the microscope, gave evidence of its cancerous nature.\*

The patient had a comparatively quiet night after the operation, and gradually improved from that time. Within a few days she began to use her hand without pain or discomfort, and by degrees to move her arm at the shoulder. The wound had nearly healed within the month; and the head of the humerus could be felt to move distinctly under the projection of the acromion and clavicle, supported on the inside by the coracoid process and thorax. The movements of the arm occasioned her no uneasiness.

The illustration, from a photograph taken after the incisions had quite cicatrised, shows how small was the amount of deformity occasioned by the removal of the bone.

September 15th. The patient left the Hospital for the Convalescent Institution at Walton. The wound had quite healed. Her health was good, and she was greatly improved in appearance. She could use her hand in many useful ways.

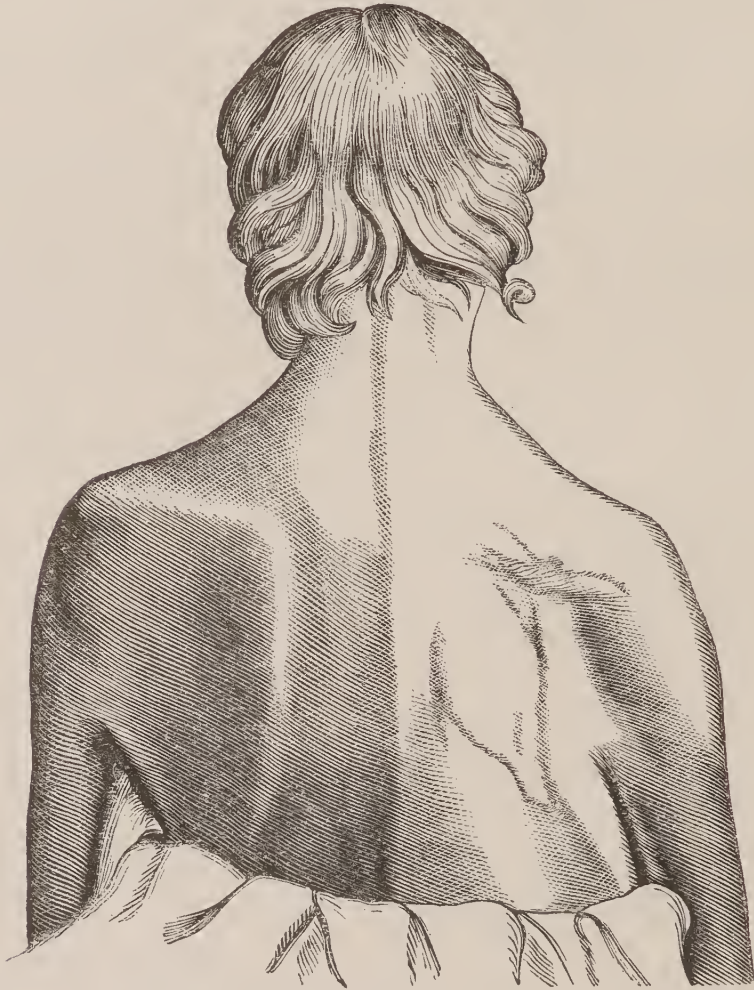
This patient was readmitted into the Hospital May 16th, 1866, with a large hard swelling, which filled up the whole of the right axilla, and in which she occasionally experienced great pain. This mass had been some weeks appearing, and was growing very rapidly. It was, without doubt, of a cancerous nature. She looked much altered, was much thinner, and apparently suffered greatly. There were symptoms of similar deposits in the lungs. She continued to get worse daily; suffered a great deal of pain, with great difficulty in breathing at times; and the mass in the axilla gradually increased. On the 18th July she was seized with difficulty of breathing, and died.

*Post-mortem examination.*—An enormous mass occupied the right

\* See *Museum Catalogue and Preparations*, Series ii. 203a; iii. 163.



axilla, and extended as far as the lower border of the eighth rib. While being removed, it was accidentally punctured, when a gush of dark-coloured, thin, bloody fluid, mixed with encephaloid matter, took place. The tumour was found to extend upwards into the neck, behind the clavicle and beneath the trapezius muscle; and downwards in the sub-



stance of the triceps. A large abscess was found in the right pleura, unconnected with the lung. In the lung itself several small nodules were found of encephaloid matter. The left pleura contained about a pint of clear fluid confined to the upper part. A cancerous mass was found adherent to the thoracic parietes posteriorly, and laterally for the lower two-thirds. On attempting to remove it, it broke down—a soft encephaloid mass which replaced the lung, with the exception of the extreme apex. The right scapula had been removed. The posterior part of the deltoid, the lower part of the trapezius, the serratus magnus and rhomboidei muscles were completely wasted, their muscular substance being replaced by a dense fibrous membrane. The acromion process was somewhat depressed; the head of the humerus rested against its under surface and that of the acromial end of the clavicle. The support was completed in front by the coracoid process, which was fixed very much in its natural position. The head of the humerus was sur-



rounded by a dense capsule, and a perfect joint was thus formed. The articular surface of the humerus was complete, as if in its natural capsule.

CASE II.—Owen Griffith, æt. 47, was admitted under my care September 15th, 1869. Nine months previously he first noticed pain and swelling over the back and upper part of the right shoulder. The swelling increased rapidly. About three months after its first appearance it was punctured, when bloody fluid squirted out of the wound. Since then the tumour has been increasing in size very quickly, and has occasioned great pain. On admission there was a tumour the size of a man's head situated over the upper and back part of the right scapula. It projected upwards, free of the upper border of that bone; but also extended downwards over its upper half. It had grown so much upwards, that the scapula was a good deal depressed by the action of the trapezius muscle stretched over this large mass. The tumour was firm and tense over its greater surface, pretty uniformly smooth, and of much the same consistence throughout, with the exception of one or two points over its most prominent portion, in which places it gave a sensation of fluctuation to the touch; and here the skin was very thin, tense, shining, and red. The tumour evidently moved with each movement of the scapula; but as, from its size, the mass was much fixed by the muscles stretched over it, it was uncertain whether the tumour could be moved without moving the scapula; and though the conclusion arrived at was, that the diseased mass grew from and was attached to the bone, the movement alone of the latter by no means satisfactorily proved such to be the case. The lower angle of the scapula was pushed much lower than natural, and was somewhat tilted outwards. The acromion process appeared quite healthy, and, as far as could be detected, so also was the glenoid cavity. The shoulder-joint could be felt free from all disease. The mass extended over the upper portion of the scapula, which could not here be traced; and over the outer half of the clavicle, which could not be felt; and also so far into the lower triangle of the neck, that the subclavian artery could not be distinguished or reached by the finger.

The illustrations, from photographs, convey some idea of the size and position of the tumour.

The patient complained of great pain and numbness of the arm. He did not appear well, and was suffering from chronic bronchitis, which had apparently been aggravated by a journey from North Wales. Plenty of air entered the right lung, but respiration was rather harsh. He was sallow in complexion, and had a pinched and careworn look. Sept. 18th. He was somewhat feverish; pulse, 112. Tongue furred; coarse crepitation heard at the lower part of the right lung. 22d. The skin gave way over the prominent point in the upper and outer side of the tumour, and a good deal of sanguineous discharge took place, and something like purulent fluid oozed out subsequently. He continued still very feverish. 25th. There has been constant oozing from the opening in the tumour, but less bloody in character. The pain is less, and he is less feverish. The swelling is, however, rapidly increasing.

The removal of the mass and the scapula with it was contemplated as soon as practicable, as the patient was anxious for an operation; but the state of his chest and his general condition rendered it desirable to postpone any such severe proceedings until his symptoms improved. 29th. Was much easier; pulse, 88; tongue clean; crepitation of the lung has disappeared. As he was very desirous not to have the operation delayed, and was suffering great pain, I decided to perform it the following day. 30th. The patient was placed under the influence of

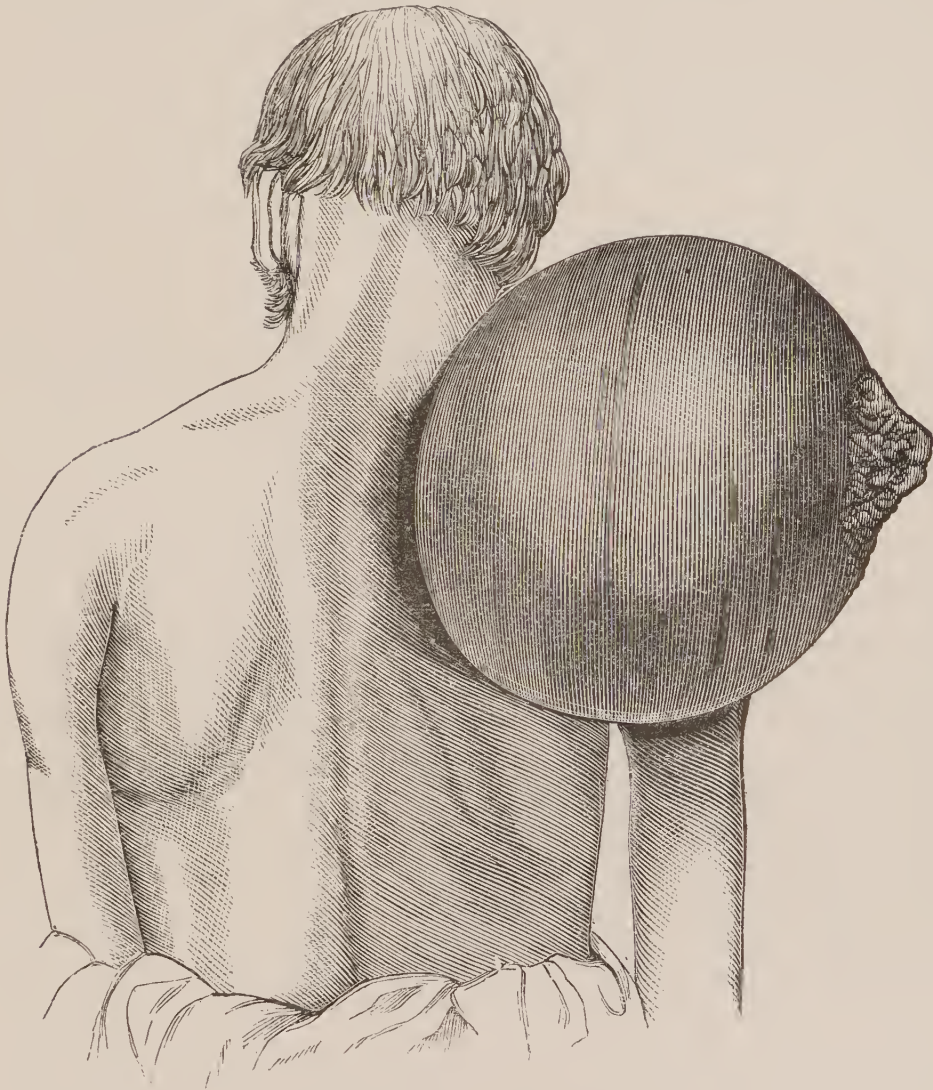


Front view of tumour.

chloroform. As the tumour projected forwards and downwards in the inferior triangle of the neck, the subclavian artery could not be compressed until an incision had been made in front of the mass and near the clavicle. Mr. Holmes then introduced his finger into the wound, and readily made pressure on the artery, and was kind enough to keep this up until the operation was completed. In consequence of the size of the tumour, and as it was most desirable to economise the loss of blood during the operation, I commenced by making an incision from within an inch of the clavicle, opposite its middle, and carried it over the tumour till it reached the upper and back part of the swelling; and



then from this latter point one at right-angles outwards to the acromion. These incisions were only skin-deep, for *I purposely avoided cutting into the diseased mass*. These two incisions formed an angular flap, with its base towards the outer half of the clavicle; and this flap was carefully dissected off the tumour. Another incision was now made inwards, in a line with that extending to the acromion, almost as far as the vertebral spines; this, with the first incision, formed another triangular flap with its base towards the root of the throat, and this flap was then also



Back view of tumour.

carefully dissected off the tumour. The upper half of the tumour was thereby completely exposed; and it was found that, with a little careful use of the knife in front, and with the fingers to tear through the cellular attachments of the tumour, the mass could be separated from all its connections with the deeper tissues in the neck. The trapezius, posterior half of deltoid and rhomboid muscles were so attenuated by being stretched over the growth, that it was difficult to distinguish them from thickened areolar tissue.



The line of the original incision was extended down to the angle of the scapula, so that two somewhat triangular flaps were now marked out and covered the lower half of the tumour. The posterior one, that nearest the median line of the body, was then carefully dissected off the growth, when, the whole extent of the posterior margin of the tumour being exposed, it was seen to be distinctly attached to and growing from the scapula. It was also seen, that the bone could be readily separated along the whole of its posterior border from its deeper attachments. As, however, there was an ulcerated spot of skin on the remaining triangular flap, which now alone was attached to the tumour, and as it was evident that there would be too abundant flaps if all the skin were saved, an incision was made from near the acromion down to the angle, so as to meet the other perpendicular incision at its lowest point. Thus a somewhat triangular portion of integument with the ulcerated opening was left attached to the tumour. The remaining flap was rapidly dissected off the outer surface of the mass, the scapula then turned over and outwards, and readily separated from its remaining attachments. The subscapular artery was tied as soon as divided. The whole of the acromion was removed; and as the corresponding posterior edge of the clavicle was found somewhat corroded by the contact of the tumour, all the diseased portion was cut away. Very few vessels required to be tied, and little blood, comparatively speaking, was lost. The flaps were large, thin, and abundant for covering the exposed surface; and as there appeared some want of vitality at their extremities and edges, they were curtailed somewhat. The head of the tumour was left in the wound, without any interference with its articular cartilage. The edges of the wound were brought together with sutures, and the arm fixed to the side. The patient was not faint after the operation, which he bore well, the pulse being good throughout. The tumour at the back of the scapula was connected with the supra-spinous fossa, which it not only filled, but projected high up above it, and quite hid from view the upper border of the bone. It lapped over the upper edge and dipped down in front, so as to cover the upper half of the subscapular fossa. A communication existed between the mass behind and that in front, through an ulcerated and rough opening in the bone about the middle of the supra-spinous fossa, which admitted the passage of a finger. The greater portion of the tumour was softened and broken down—so much so, that it had become a large cavity with walls of varying thickness. The mass measured ten inches at its greatest width, and twelve inches from its upper surface to the lower angle of the scapula. Oct. 1st. The patient passed a quiet night, and said he had been much more free from pain than previous to the operation. Skin hot; pulse, 120; tongue furred. The lower portion of the wound looked united; but the edges of the upper portion were inclined to slough to a slight extent, and there was much serous discharge. He was much the same in most respects the next day; but the breathing was a little more oppressed. He thought he had caught cold, and probably the chloroform had increased his bronchial irritation.

The bronchitic symptoms gradually increased, with coarse crepita-

tion over lower part of both lungs, and he gradually sank, and died at 9 P.M. on the 5th October. During this period there was nothing particular to record about the wound. The second day after the operation he requested to be allowed to use his hand, and moved his arm without discomfort. Immediately the scapula was removed, the head of the humerus fell away from the clavicle to such an extent, that the extremity of the latter projected very considerably; but when the arm was supported and fixed to the side, this projection was much lessened, but not entirely. In two days, however, the anterior fibres of the deltoid had so far recovered their power, that the humerus was drawn up under the end of the clavicle, and the prominence of the latter was no longer apparent. At the post-mortem examination of the body no trace of malignant disease was observed in the lungs. The latter were greatly congested, the mucous membrane of the bronchi inflamed, and the bronchial tubes surcharged with frothy mucus.

In alluding to the operation of excision of the scapula, one of the many great advances of modern surgery, I feel it a pleasure as well as a duty to pay my tribute of respect and admiration to him who first conceived the idea of its practicability, and had the courage to attempt it. In 1856 Mr. Syme performed this operation for the first time, previous to which no instance had occurred, I believe, in Europe or America. He published the particulars of this case in 1864 in a treatise *On Excision of the Scapula*, and with it the history of two other equally successful cases; although in one of the latter he was compelled to remove the arm also. Since Mr. Syme demonstrated the safety of this once supposed to be formidable operation, it has been repeated in a few instances by other surgeons; but altogether the cases, I believe, are not numerous.\* Our experience also goes to prove, that disease of the scapula which necessitates excision of the bone is not of sufficiently frequent occurrence to render the operation a very common one; and at present it may be presumed that the records of each case are of some interest, and will probably present peculiarities regarding the operation, and tend to improve our somewhat scanty knowledge

\* A *résumé* of ten cases was published in the *New York Medical Journal* for 1866, and is referred to in the *New Sydenham Society's Biennial Retrospect* for 1865-66, p. 220. This includes a reference to the first of my cases, which, however, was not at that time completed. Three died. Another case (fatal), under Mr. Sydney Jones's care, is reported in the *Lancet*, Nov. 21, 1866.

of the results obtained. Previous to the time when Mr. Syme proved that the scapula could be safely removed, cases in which surgeons would now resort to simple excision were left to run their course, or underwent the severe alternative of having the whole upper extremity removed with the tumour. In this respect, as in many other common daily occurrences of life, the greater difficulty and greater danger appear alone to have been considered and attempted to be overcome, when a much less formidable proceeding, and a far less dangerous one, was entirely overlooked, or contemplated as hopeless. As compared with the removal of the arm with the scapula, the excision of the latter bone alone may truly be said to be a simple, speedy, safe, and very successful operation. I regard it as an operation less formidable than that of amputation through the thigh; and the mutilation of the subject is far less than that from the loss of a portion of the upper limb. The patient need not lose much blood during the operation, and the operation itself need not occupy much time, provided the tumour be not large, and has not become attached to important parts or deeply-seated structures. But even in the removal of very large tumours, as in the case of Griffiths, it will be found that if a little more time is spent over the operation than might at first sight appear requisite, and if care be taken as to the manner in which incisions are made, much loss of blood may be avoided; whereas if long, deep, and very free incisions are made at the commencement of the operation, and adhesions are indiscriminately divided with the knife rather than torn with the fingers, such a loss of blood may occur as will seal the fate of the patient. In the removal of all large tumours, be they situated in any part of the body, the most serious difficulty to be encountered, and to be avoided if possible, is a large loss of blood during the performance of the operation. This is one of the chief points about which the surgeon should always be anxious—and to avoid it. The patient replaced in his bed with a small loss of blood will recover from most operations for the time being; whereas a large loss, especially in the removal of a large tumour, will often be rapidly fatal.



The question for surgeons to consider, and to which I wish more especially to draw attention, is, what may be the best method of removing the scapula? By what incisions, by what process, can we most quickly, and with the least loss of blood, separate it from the trunk and the humerus? The economy of blood, and the rapidity of removal, are the two most desirable objects in excision of the scapula. With respect to the incisions in this operation, something must depend on the size of the tumour, something on its shape and situation, and something on the state of the integuments. But provided the growth be not very great, nor the skin in any measure implicated by the disease, the incisions adopted by Mr. Syme are all that need be made—viz. one across the upper surface, and another midway from this to the lower angle of the bone or edge of tumour.

Subsequent to the formation of these incisions, Mr. Syme continued his operation by cutting through the soft structures at the anterior border of the scapula, then secured the subscapular artery, liberated the glenoid cavity from the head of the humerus, and lastly separated the rest of the bone from its attachments; a proceeding which, upon careful consideration, and after repeated experiments on the dead body, I have thought it desirable to depart from. I cannot do better than describe his operation in his own words:

“I made an incision from the acromion process transversely to the posterior edge of the scapula, and another from the centre of this one directly downwards to the lower margin of the tumour. The flaps thus formed being reflected without much hæmorrhage, I separated the scapular attachment of the deltoid, and divided the connections of the acromial extremity of the clavicle. Then, wishing to command the subscapular artery, I divided it, with the effect of giving issue to a fearful gush of blood, but fortunately caught the vessel, and tied it without any delay. I next cut into the joint and round the glenoid cavity, hooked my finger under the coracoid process so as to facilitate the division of its muscular and ligamentous attachments, and then, pulling back the bone with all the force of my left hand, separated its remaining attachments with rapid sweeps of the knife.”\*

Instead of attempting to detach the muscles of the

\* *Excision of the Scapula*, p. 13.

anterior border in the first stage of the operation, I have, in both instances recorded by me, liberated the posterior border in the commencement, then the inferior, and then turned up the bone from below outwards. This proceeding allows a finger to be readily passed under the subscapular artery before it is divided; so that when divided, it can be at once secured without the loss of any blood from that artery. Then the remaining structures round the joint and attached to the coracoid process were readily and rapidly cut through, and the separation of the tumour effected. I was not aware until after I had adopted this method for the removal of the scapula, that Sir William Fergusson had also preferred the plan of liberating the posterior edge of the bone before attacking its anterior border.

Previous to any attempt to liberate the scapula from any of its attachments, the subclavian artery should be compressed, and the compression should be continued until the operation is completed and the chief vessels tied. The result will be, that little loss of blood will occur, and the operation will be rendered comparatively simple; and I believe it will be generally found that, when the subscapular artery and one or two vessels in its neighbourhood are secured, and the pressure removed from the subclavian, very few other vessels will require to be tied. For such a large surface as must necessarily be exposed in this operation, the number of arteries which usually require to be taken up are remarkably few. If the subclavian be successfully compressed during the operation, the surgeon has nothing to fear from hæmorrhage, *provided he avoids cutting into the diseased mass.*

If the two methods of removing the scapula which have now been considered, be attempted on the dead subject, it will be found that the liberation of the scapula behind and below in the first instance and its eversion, will give great facility and freedom to the surgeon in the subsequent stages of the operation. He has all clear and exposed before him; whereas if he commences to liberate the scapula at its anterior border, he cannot use his knife with an equal

degree of freedom, and the removal of the bone becomes necessarily a longer process than it otherwise would be. I am not aware that this point has been sufficiently dwelt upon; I am therefore anxious to urge for the consideration of others what has appeared to me as most important, and renders the operation a comparatively simple and safe one; an operation which may be undertaken without hesitation, provided efficient and ample assistance is available.

The scapula being removed, the flaps should be brought together as in any ordinary wound. The arm should be supported by a sling, and fixed to the side; for, the posterior fibres of the deltoid and the muscles round the joint being cut through, the head of the humerus falls away from the clavicle, and the point of the latter becomes for the time extremely prominent. It may also be advantageous to place a pad in the axilla for a day or two.

It is better, no doubt, to leave a portion of the acromion, or the whole of it, as in Penn's case, attached to the clavicle, provided it is not diseased. For it assists to form a more complete covering and support for the future artificial joint, gives a greater protection and surface to the head of the humerus, and mitigates the disfigurement of the shoulder; in addition to which, it enables the surgeon to save a larger portion of the origin of the deltoid. For similar reasons the coracoid process may be left, if not implicated in the disease. The head of the humerus should be left as nearly as possible in its natural position, and the articular cartilage on no account interfered with. It has been stated, that in Penn's case it served a most useful purpose after the operation, by aiding to form a new joint, and thus permitted very free movements of the arm, which, had the cartilage been removed, would in all probability not have been the case.

If any portion of the clavicle be implicated by the contact of the tumour, it should be cut out; but otherwise it is best not to interfere with it, as it gives origin to the anterior portion of the deltoid, already mutilated by the removal of the scapula.

The question may arise, whether a portion of the sca-



pula should be removed, or the whole. In speaking of a portion of the bone, it is not intended to refer to the mere saving of the acromion or coracoid processes; but whether a half or a third of the bone might be advantageously preserved, supposing the disease to implicate only the other portion. Mr. Liston has published a case, in which he removed three-fourths of the scapula for a tumour growing from below the spinous process, in a boy sixteen years old; but the hæmorrhage is described as frightful.\* Sir William Fergusson† also mentions a case in which he removed a tumour which involved the lower angle of the scapula; and others have been recorded. I have never seen such an operation attempted; nor have I attempted it myself, with the exception of removing a large enchondromatous tumour from the scapula, and in the removal of which the acromion was sawn off close to its base at the spine, and removed with a small portion of the clavicle.

If a portion of the scapula be removed, it should only be the lower portion. But even if this be attempted, the loss of blood would probably be much greater than if the whole bone were removed; for the wound is more confined, and the wounded arteries are more apt to retract behind the bone above, and offer great obstacles to their being secured. However, should the lower angle be alone the seat of disease, the attempt to remove the lower portion only is justifiable. It must, however, be borne in mind, that when a bone is once the seat of disease which requires removal, the disease is very apt to recur in the portion left, and less liable to do so if the whole bone be removed. Such was not, however, the case in the patient on whom Sir William Fergusson operated; though the disease returned in Mr. Liston's patient. As the removal of the whole bone is not a more formidable operation than the removal of a portion of it, and as the patient has less chance of a recurrence of his disease if the whole bone be taken away, it should be in a very exceptional case, and on some very peculiar merits of its own, that the sur-

\* *Edin. Med. and Surg. Journal*, vol. xvi. p. 66.

† *Lectures on the Progress of Anatomy and Surgery*, p. 43.

geon ought to undertake the removal of a portion of the scapula.

In making incisions for the removal of a very large tumour here or elsewhere, the surgeon may economise blood by taking the following precautions: in the first place, the incisions should not be longer than he requires for the time. For instance, if a tumour cannot be removed unless large flaps of skin are made, no longer incisions should be made than are requisite for the dissection of each flap in its turn. If a long incision be made, it will be bleeding at its lower extremity while the surgeon is separating some of the integuments at the upper part, and thus unnecessary loss of blood takes place. Again, more skin than requisite should not be saved for the flaps in the removal of the scapula. If that which is not required is left attached to the tumour, time is saved by not having to dissect it off; and so much blood is saved as would be lost in separating it from the growth to which it is attached. Lastly, *the tumour itself should not be cut into*—the incisions should only be skin-deep. If the tumour be cut into at the same time that the incisions are made, a great gush of blood may occur: the tumour may be exceedingly vascular, its vessels will be diseased and will not readily contract, and a free incision into it may give rise to most formidable hæmorrhage; whereas outside the tumour the vessels will be healthy, and comparatively few may require to be secured when the removal of the bone has been completed.

GEORGE POLLOCK.





## XV. NOTE ON EXCISION OF THE ANKLE-JOINT.

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EXCISION of the ankle-joint is an operation which is rarely practised in our hospitals, and which I believe is not very successful. I have not myself had the opportunity of operating in more than the single case related below;\* and there has been only one other case operated on at St. George's Hospital. In that case the operation proved unsuccessful, and amputation became necessary after a protracted treatment. The patient ultimately sank, and died of phthisis. (Amputation Book, No. 263.)

On the other hand, we see cases related in which extensive excision of the tarsal bones, as well as of the articular ends of the bones of the leg, have recovered with useful limbs. Mr. Hancock, in his lectures at the College of Surgeons in 1867, collected thirty-two cases from miscellaneous sources, of which twenty-one recovered with useful limbs, two recovered after amputation, seven died, and the result of the other two was doubtful. Of these cases, five belonged to Mr. Hancock himself (who claims, and probably with justice, the invention of the operation); and four of these were successful. Mr. Hancock refers to a striking case operated on by Dr. Caniff of Toronto, in which the whole astragalus, half an inch in thickness of the os calcis, and one and a half inch of the tibia and fibula—in all, more than three inches of bone—were removed with success. A case in which the whole astragalus and a portion of the os calcis were removed in excision of the ankle, is reported by Mr. Erichsen, in his *Science and Art of Surgery*, vol. ii. p. 210; and one in which even a larger quantity of bone was removed, was published by Mr. Mulvany in the *Lancet* for Nov. 6th, 1869. Success was perfect in both these cases.

\* I have operated on another case while these pages were passing through the press.

My object in relating the following case is twofold; first, to show that the operation is a justifiable one in appropriate cases, yielding results very far superior to Syme's or Pisogoff's amputation, which is the alternative usually suggested; and secondly, to call the reader's attention to the propriety of removing the whole astragalus when the disease in that bone is extensive.

The account of the case is derived from Mr. Leigh's

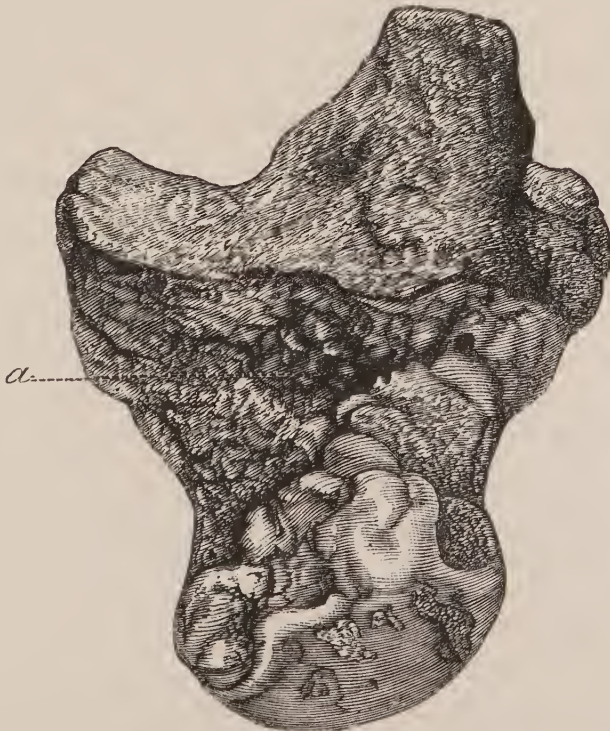


The bones of the ankle-joint removed in this case. The thickness of the slice of the tibia was half in.; that of the astragalus one inch. The articular surfaces are seen to be ulcerated throughout; the sections of the bones of the leg were healthy. The pit shown on the upper surface of the astragalus (*a*) is the mark of the lion-forceps.



notes in the Hospital Case-book, my own notes having been mislaid.

The patient, Richard Patrick, a country lad, æt. 18, was admitted March 5th, 1869. It seemed that two years previously he had sprained his left foot in jumping, and as he supposed "put the bone out;" but he could still walk about. Nine months ago "the bone was put back" (probably some manipulation by a bone-setter); but for the last six months he has been unable to put his foot to the ground. Pain and jumping at night succeeded; but were relieved on the bursting of an abscess three months ago, and there is now no pain unless he tries to stand. There was a good deal of swelling, and one or two sinuses on either side of the joint. On examination under chloroform grating was detected in the ankle-joint, and the probe passed down towards, and it was thought into, the astragalo-calcanean articulation; but no bone was felt exposed in that situation. As the disease did not affect the anterior part of the foot, nor the bones of the leg to any distance from the joint, it was determined to try the excision of the ankle. This was done on April 1st by two lateral incisions behind either malleolus. Care was taken not to wound any of the tendons. The ends of the tibia and fibula were removed without much difficulty; but considerable difficulty was experienced in removing the astragalus entire. However, as the bone was exposed in great part, and its lower surface roughened as well as its upper, I determined to do so. I divided it freely from the scaphoid, the joint here being perfectly healthy, and then lifted it upwards with an elevator, and insinuated a knife between it and the os calcis, and finally twisted it out with the lion forceps. The woodcuts will show the condition of the bones.



The under surface of the astragalus also ulcerated. The deeper pit (*a*) was made by the lion-forceps.



The whole of the articular surfaces in the ankle and a great part of the lower surface of the astragalus were ulcerated, and the bone seemed somewhat softened. The sawn surfaces of the tibia and fibula were quite healthy, nor did the os calcis seem in any way affected. A piece of oiled lint was inserted from one lateral wound to the other, the rest of the incisions were united, and the limb put up in an Assallini's fracture-box before the patient's removal from the theatre. At first the discharge was very profuse, so that it was necessary soon to change the box; the swelling was very great, and the discharge somewhat sanious; but there were never any alarming general symptoms, and the local conditions became soon more favourable. The wounds began to heal rapidly, the parts became consolidated, and at the end of May (about seven weeks after operation) he was able to leave his bed. There was still much thickening, and an abscess formed deep in the calf; but this did not much delay his convalescence, and he left the Hospital on July 28th. There was then about two inches of shortening. The boy himself believed that that leg was shorter than the other before the operation; but if so, it was not noted. On his discharge, the wounds were healed, and the opening of the abscess above mentioned very nearly so. He could walk well with a stick, the toes moved freely, and there was some little passive motion at the seat of the operation.

1. On the first of the two points above stated, I think it will be conceded that the result which followed in this case is better than that of an amputation. This is not indeed of itself decisive as to the propriety of the course pursued; for an accidental success may be obtained by an operation which would not be generally advisable. But it seems to me, that in cases like the present the operation of excision would usually succeed; and that the reason why excisions of the ankle are not generally successful is, that they are done on a different class of cases. In the present instance the patient was a perfectly healthy lad; the disease obviously of recent traumatic origin; and there was every reason to believe that the inflammatory softening was limited to the astragalus. On the other hand, this operation is often performed in cases where the whole or a great part of the tarsus is involved in inflammatory softening, and the patient is much reduced in health by confinement, pain, and discharge, or is even affected with obvious constitutional symptoms. In such cases excision, which is a much severer operation than amputation, besides not being necessarily a final one, should not be recommended.

2. But the second point is the one on which I wish to

lay more stress. May it not be that the ill-success of excision of the ankle is often due to leaving behind a portion of inflamed astragalus, which is rendered still more disposed to disease by the violence done to it by the saw? Or may not the astragalo-calcanean joint have been affected as well as the ankle? I have elsewhere\* endeavoured to show how much the results of operations on the bones of the tarsus are improved, when, instead of the haphazard gouging usually adopted, the affected bone is dissected cleanly out of its articulations, and nothing but healthy cartilage is left in the wound. This operation is peculiarly successful both in the os calcis and astragalus, and would probably succeed as well on the smaller bones, if they were found alone affected. The same reasoning is equally applicable to the operation which we are now considering. The only objection which I can see to the proposal is, that the removal of the whole astragalus somewhat increases the resulting shortening of the leg. This, however, is a matter of trifling importance; for the difference (as may be proved by measurement on the bone) cannot much exceed half an inch. The operation is certainly rendered a little more difficult, especially if performed with lateral incisions; but this is also a matter of no practical moment. If, however, the surgeon prefers it, the joint may be removed by an incision running across the foot similar to the anterior flap of Syme's amputation. The anterior tendons and vessels are divided; but I have several times removed the astragalus alone in this way with good results.† Still the mutilation of the tendons, and the wounding of the anterior tibial artery, being certainly unnecessary, should, I think, be avoided.

I believe that if the operation of excising the ankle were more limited to healthy subjects, in whom the disease is probably traumatic, and if the astragalus were removed entire, the operation would be a far more successful one.

T. HOLMES.

\* *Lancet*, vol. i. 1865: "On the treatment of caries of single bones of the tarsus and metatarsus by excision of the entire bone."

† *Surgical Treatment of Children's Diseases*, 2d ed. p. 502.





## XVI. APHASIA.

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*Case of hemiplegia of the left side in an ambidextrous boy. Subsequent occurrence of Aphasia, which continued complete for three months. Gradual but imperfect recovery of speech. Necrosis of the jaw. Death from exhaustion twelve months after the original seizure. Nearly total destruction of the island of Reil on the right side.*

ON the 11th December 1867, Henry Pearce, æt. 18, was admitted under my care with hemiplegia of the left side. His face was slightly drawn to the right, the left pupil was rather large; but the tongue, which was red and furred, could be readily protruded to the left, and both eyes firmly closed. Loss of motion was complete in the left arm, but was only partial in the leg, the sensation of both being normal. He appeared very drowsy, and complained of pain in his head; but when roused, gave clearly the history of his case, stating that the paralysis had occurred suddenly five days before admission, after exposure to cold and wet, from sleeping on a barge in which he was employed. His urine was loaded with lithates, but free from albumen, and his heart-sounds were natural. He was freely purged, and diuretics were given; and on the 15th, although he remained drowsy and apparently ill-tempered, had voluntary power over his left leg, and could use the corresponding arm a little. Early on the morning of the 16th, the left side of his face and body was convulsed, after which he fell asleep. When seen at 1 P.M. he appeared half unconscious, and was unable to speak; the left arm was spasmodically pressed against his side; and although he gave the right when asked, he either could not or would not open his mouth; both pupils were dilated, and his pulse was slow. A blister was placed at the back of his neck, and a purgative enema was administered. On the 18th he had not spoken, seemed very fretful, groaned, clenched his teeth, and occasionally gaped. Advantage was taken of this to keep his mouth open with a plug, and to give him some nourishment and a drop of croton oil. He was freely purged by this; but for the three following days took only a little wine; and though perfectly conscious of everything passing around him, never spoke. On the 18th he was able to move his left leg freely, but not his arm, and he succeeded in making his mother understand that he wished to write. On being given a slate and pencil, he wrote readily the word "Orange;" and when asked his name, wrote that correctly with his right hand, although his mother asserted that she had never previously seen him do so, and that he and four of his brothers were left-handed. He

seemed thirsty, his skin was hot, his pulse 112, and his bowels had not acted since the 18th. Croton oil was administered, six leeches were applied to the right temple, his head was shaved, and ice was applied to it; the wine he had been taking was omitted, and diuretics ordered. On the 23d, his pulse was reduced to 80, his skin was cool, and his appearance much more intelligent. He occasionally took a little food, but never spoke, and obstinately refused to open his mouth. When asked if he tried to speak and was unable, he wrote "Yes;" if, when well, he wrote with his right or left hand, "Both;" and then added, "Fight with left." Between this date and January 1868 he took so little food, that he was only kept alive by wine and beef-tea injections. He had then a slight attack of erysipelas upon the face, which disappeared in three days, after which he commenced to take food. On the 14th, the following note was made of his condition: He now lies on his back, observant of everything around him, draws attention to his wants by a moaning cry, and writes his wishes correctly on a slate; his skin is cool, and his pulse 90. When asked to speak, he appears to make an effort to do so, which ends in a whine; he readily opens his mouth, and very partially protrudes his tongue; but although he is entirely fed by the mouth, he has difficulty in swallowing any solid, even keeping bread for a long time in his mouth. He can move his left leg, but the arm continues motionless, though no longer pressed against his side. He was ordered cod-liver oil and syrup of iodide of iron; and eggs, arrowroot, and as much beef-tea as he could take were given. On February 1st he was up, was able with assistance to walk from one bed to another, and very slightly to move his left arm. From this time until the beginning of March he gradually recovered the use of his leg, and obtained considerable motion in the arm, was up and about the ward, had perfect control over his sphincters, and in manner gave one the impression of being very intelligent and rather facetious. He wrote all his wishes on a slate, but could never eat anything solid without evident difficulty; he could not be persuaded, or else was unable, either to protrude or move his tongue, and he never spoke. About this time he became anxious to leave the Hospital, and commenced passing everything under him in bed, his bowels being relaxed, whereas they had previously required the occasional use of croton oil to make them act; and in this condition, without any alteration in his intelligence, and without having uttered a single word, he went to his own home on March 12th. On visiting him there two weeks later, I found that at his mother's dictation he repeated after her various words and sentences, with the intonation employed by one who endeavours to speak without moving the tongue. This power was gradually increased, until at last he was able to talk with sufficient distinctness to be perfectly understood by those accustomed to him. On June 30th, he was readmitted into the Hospital, on account of necrosis of the jaw, for which he underwent an operation; and was discharged at the end of July. He was then able to protrude his tongue naturally, and talked in a slobbering manner, but had no difficulty in producing words, and always used the right ones. The paralysis of the face and arm remained, but he was able to walk well. From this date until that of his death,



which took place in December 1868, there was but little alteration in his symptoms. He gradually became emaciated and lost strength; and died exhausted, without any increase of paralysis or any convulsion. The following post-mortem appearances of the brain, which I obtained permission to remove, are from the notes of my colleague, Mr. Pick.

There was a considerable amount of clear serous fluid in the sub-arachnoid spaces. Upon removing the membranes of the brain and viewing its surface, there was noticed to be a general flattening of the convolutions of both hemispheres, as if the brain had been compressed. Besides this, on the *right* side there was a distinct concavity or depression, forming a deep sulcus or groove, which commenced close to the longitudinal fissure, and ran down to the base of the brain. The deepest part of the groove exactly corresponded to the ascending fissure of Sylvius, and it extended backwards as far as Rolando's fissure, and forwards into the anterior lobe. This depression appeared to be formed by a sinking of the outer layers of the brain from loss of cerebral substance beneath. This depression produced a marked difference in the contour of the hemisphere as compared with the other side. Upon examining the surface of the brain with the finger, there was found to be very distinct softening for a considerable extent behind Rolando's fissure on the right side. Upon removing the brain from the skull, and raising the temporo-sphenoidal lobe on the right side from the fissure of Sylvius, there was found to be an almost entire absence of the island of Reil from softening and actual loss of brain-substance, and in its place was found a large cavity occupied by a little fluid and a small amount of broken-down brain-matter. The only portion of the island of Reil remaining was a small part of the internal border. The tissues around this cavity were softened and disintegrated with increased vascularity, presenting the appearance known as "red softening;" and this condition extended backwards and outwards for the extent of at least half an inch, and involved the inferior frontal convolution. In addition to this, the surface of the temporo-sphenoidal lobe in contact with the island of Reil was also softened for some distance into its substance, but did not present the same depth of redness as the other part. The corresponding parts on the opposite (left) side of the brain were perfectly natural. On slicing the brain, the cerebral substance generally presented a perfectly healthy and natural appearance; but in the right ventricle there was found to be a distinct depression, involving the posterior half of the corpus striatum; this was caused by a sinking of the more superficial layers of this portion of the brain into the depression above described at the base, so that the ventricle was separated from this softened cavity by an extremely thin layer of cerebral tissue. From the foregoing description it will be seen that the softened portion of brain was of about the size of a hen's egg; above, it involved the under part of the corpus striatum; behind, it extended beyond the ascending Sylvian fissure, and implicated the inferior frontal convolution; externally, it extended almost to the surface of the brain; while internally, it reached the inner border of the island of Reil. The remainder of the brain was perfectly healthy; the



corresponding parts on the left side were of firm consistence, and did not present the slightest evidence of softening. The cerebral vessels were carefully examined, and were perfectly healthy and natural throughout. In the middle cerebral, as far as it could be traced, there was no appearance of an embolus or plug.

This case, when under observation at the Hospital, was considered by many as an undoubted one of aphasia. It is probable that if the boy had died before recovering the faculty of speech, and his brain had presented the lesion which was subsequently found, this would have been claimed as a case strongly supporting that theory which regards the brain as a series of distinct organs, each one endowed with a special and independent function; and might have been fairly supposed to strengthen the opinion of those who believe in the unilateral localisation of the organ of language, and in Broca's statement that this is situated in the posterior part of the third frontal convolution. The aphasia in this instance following on injury to the right and not the left hemisphere, might also have been explained on the supposition which has been made, that in left-handed individuals the organ of speech is exceptionally placed in the opposite hemisphere. Against this explanation, which was, however, given by some, we have the fact of the boy being ambidextrous and not left-handed; and we have also his subsequent recovery of speech. By others the case was regarded as one in which the loss of speech was dependent upon paralysis of the tongue, and not as a case of aphasia in the generally accepted meaning of that term. In favour of this latter view, the boy's gradual recovery of speech after leaving the Hospital—a recovery contemporaneous with that of the power of moving and protruding his tongue—appears to give considerable support. Even the peculiar imperfection which accompanied his earlier attempts to speak, giving him the appearance of being tongue-tied, and the slobbering articulation, which he never lost, are evidence in the same direction. On the other hand, an inability to protrude the tongue is common enough in many cases of aphasia; and the manner in which the boy's speech was recovered, by a patient and laborious process of education

on the part of his mother, who made him repeat after her, first words and subsequently phrases, seems to stamp this case as one belonging to that form of aphasia to which the name of *atactic* has been given—in which the patient, having perfectly retained the memory of words, has lost the remembrance of how to give them utterance—has suffered, in fact, some lesion of a supposed cerebral apparatus for coördinating the movements necessary for articulating language. Moreover, if the loss of speech had depended solely on paralysis of the muscles concerned in articulation, it would be reasonable to suppose that, having recovered from this sufficiently to articulate, however imperfectly, one word or phrase, he would quite as readily have given expression to all his thoughts; whereas “yes” and “no,” “good-morning,” and “Dr. Wadham,” were the only words he had been taught when I first visited him after he left the Hospital. Even on his second admission he only spoke to express his wants and to answer questions asked him, and gave me the impression of possessing a very limited vocabulary. The post-mortem appearances also, which showed no trace of any injury to the olivary bodies or the fourth ventricle, are against the supposition that the loss of speech depended upon paralysis of the muscles employed in its expression. The case must then, I think, be regarded as one of aphasia properly so called, *atactic* and not *amnemonic* in its nature; for the boy never in any degree lost the memory of language, as was shown by his power of writing and spelling correctly, and he was always able to express his wishes by pantomime. The only loss which he experienced was that of the power of converting his thoughts into words.

If this was really a case of aphasia, it is interesting to inquire how far it supports or invalidates that assertion of Broca's—in refutation of which several cases have been recorded—that aphasia is always connected with a lesion of the posterior part of the third frontal convolution of the left hemisphere, and that this is the seat of speech. In this instance Broca's region was found after death perfectly healthy and sound. The aphasia was therefore totally unconnected with any injury to this. But supposing

the loss of speech to have depended upon paralysis of the tongue, it ought to have been perfectly, instead of only partially, restored, when this paralysis entirely passed away. The only explanation, therefore, left is, that the aphasia resulted as the consequence of the lesion in the right hemisphere of the brain. If the boy had never recovered his speech, and if he had been positively left-handed, this explanation would have been in perfect accordance with the supposition, that in left-handed individuals the seat of speech is transferred to the opposite hemisphere; but the recovery of speech, without, as shown by the post-mortem examination, any repair of the cerebral lesion, entirely destroys this explanation, and obliges us to seek for another, which I think may be found in the fact that the boy, although strongest in his left hand, was ambidextrous.

For this explanation, it is necessary to consider the brain as a symmetrical organ, probably composed of an assemblage of lesser organs arranged in pairs, with similar functions. That under ordinary circumstances, and in the majority of men, the organ of speech in the left hemisphere is educated, but in the right remains dormant; the contrary being the case in men who by preference use their left hands. That in very exceptional cases like the one we are now considering, when individuals are ambidextrous, the organ may be fully educated on one side, and partially so on the other. That in this particular case the organ was fully educated, and the function developed on the right side, and to a less degree on the left; consequently that when destruction of the part in which the fully-developed function was localised took place, the boy became aphasic for a time, but subsequently had the function which was imperfectly developed on the other side sufficiently educated to give him the amount of speech he acquired, and which he did not live sufficiently long to perfect.

WILLIAM WADHAM, M.D.



## XVII. ON THE TREATMENT OF ACUTE ORCHITIS.

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FEW acute diseases come more frequently under the notice of the surgeon than orchitis, or, as some surgeons prefer to call it, epididymitis, resulting from an attack of gonorrhoea; and it seems to me that, taking into consideration the number of cases that every surgeon connected with a general hospital sees in the course of a year, the treatment of the disease is not yet placed on a satisfactory footing.

Let us consider briefly the cause of this inflammation of the testicle, and the pathological conditions observed in those rare cases where death has occurred during the existence of the disease.

A man contracts a gonorrhoea, or, in other words, an inflammation of the urethra, involving to a greater or lesser extent the submucous areolar tissue (according to circumstances); the inflammation is either confined to the anterior portion of the urethra, or spreads backwards towards the prostatic portion; and the latter, I think, is apt to occur in men of lax habit and lymphatic temperament, in whom a slight cause induces diffuse cellulitis in any part of the body. Under these conditions, the inflammation reaches the areolar tissue surrounding the ejaculatory duct, and thence rapidly spreading along the course of the duct, attacks both cord and epididymis, and the inflammation extending itself as it does to the tunica vaginalis, we arrive at the condition known as acute orchitis.

That acute orchitis really depends on a condition of diffuse cellular inflammation is satisfactorily proved by the observations of Gaussail,\* who was fortunate enough to meet with opportunities of observing the pathological condition of the parts concerned. In his dissections he

\* Quoted by Curling, *On Diseases of the Testicle*, p. 232.

found the tunica vaginalis distended with lymph and bloody serum; the walls of the membrane were congested, and bands of adhesion existed; the volume of the true testicle structure was not increased. The main bulk of the whole organ was occasioned by the swollen condition of the epididymis and the effusion into the tunica vaginalis. Examination of the epididymis showed an immense increase in size, which was due to an exudation having taken place in the connective tissue between the convolutions of the duct. The globus minor was especially enlarged, and the walls of the vas deferens were thickened.

There is, then, little doubt from these observations, that, as a rule, the testicle itself, *i.e.* its secreting structure, is entirely unaffected in the acute orchitis following gonorrhoea; and that the true explanation of the disease is a diffuse inflammation of the connective tissue of the cord and epididymis spreading by continuity to the serous membrane of the testicle. That this is the true explanation is shown by the fact, that if the patient applies within a day or two of the attack, the epididymis is the only part of the testicle attacked, and if treated thus early, the tunica vaginalis escapes inflammation altogether.

Mr. Curling, in his excellent work on *Diseases of the Testicle*, quotes Gendrin, who has pointed out that when the subserous cellular tissue, which always participates in the inflammation of a serous membrane, penetrates into the interior of an organ, it becomes a ready means of communicating the inflammatory action; but when the contiguous organ or subjacent part is not composed of, or does not contain, areolar tissue, the extension inwards is checked. Thus is explained the almost entire immunity from attack which the secreting structure of the testicle enjoys; for the tunica albuginea arrests the spreading inwards of the inflammation; and every surgeon must have observed the fact, that in cases of the radical cure of hydrocele by injection or wire-seton, if too much inflammation be excited, it attacks, not the interior of the testicle, but spreads along the epididymis to the cord. Although in the vast majority of cases I believe the disease to be simple diffuse cellular inflam-

mation, there are doubtless cases, rare though they be, of the interior of the duct being attacked; Gosselin especially having found some deposit in its cavity as well as in its walls: he has also shown by dissections, that either the cavity of a portion of the epididymis or vas deferens may become impervious. It can be readily understood, if, from a bad state of health or injudicious treatment, the inflammation has continued for a long time, that the vas deferens or some part of the epididymis may become inflamed and thickened, and ultimately the interior blocked up with the products of inflammation, which, becoming organised, would give rise to complete obstruction of the tube in which the deposit had taken place. That inflammation spreads from the tunica vaginalis to the epididymis more readily than to the tunica albuginea, I have had a good illustration recently.

A gentleman received a kick in the thigh and testicle; he was attacked immediately with violent pain in the organ; and when I saw him the following day, there was considerable effusion into the tunica vaginalis, and great tenderness on making an examination, but no swelling of the epididymis; in less than twenty-four hours, however, the inflammation spread back to the epididymis and cord, and the testicle looked exactly like an ordinary case of orchitis the result of gonorrhœa. I carried out the plan of treatment I am about to recommend, and in ten days the patient was following his usual avocations.

If we refer to the various authorities as to the treatment to be pursued, we are surprised at the active, not to say violent, means adopted to subdue the inflammation, the character of which (established as it is by the excellent observers quoted) seems to be quite overlooked. Mr. Curling recommends antiphlogistic treatment: "Acute orchitis, if treated quite early with nauseating doses of tartar emetic, usually subsides rapidly, so that this plan renders local depletion unnecessary." "Tartar emetic may be prescribed in camphor mixture, with small doses of sulphate of magnesia and tincture of henbane. Pain and constitutional derangement may be relieved by one or two grains of calomel, combined with eight or ten grains



of Dover's powder, or half a grain of morphia taken at bedtime. In addition to these active measures, leeches along the cord, or bleeding from the veins of the scrotum, is recommended." The treatment by antimony, calomel, and local bleeding seems active enough; but it was reserved for Mr. Henry Smith to recommend a very startling method of cure.

A patient suffering from acute gonorrhoeal orchitis, with an unusual amount of swelling and pain, came under Mr. Smith's notice in July 1863.\* From the severity of the symptoms it was thought that suppuration must have taken place, and a free and deep incision with a bistoury was made with the view of letting out the pus. To the dismay of the surgeon, a little serum and blood escaped, and the tubes of the testicle protruded through the wound. Two days subsequently the patient was quite free from pain, the swelling and redness had almost disappeared, the protrusion no longer existed. Mr. Smith was so struck by the fortunate termination of the case, that he determined to try the same treatment in other cases; and finding the method of "making a free and deep incision" give relief to pain, Mr. Smith was led to adopt it as the usual treatment of acute orchitis. No one can doubt Mr. Smith's statement of the result of his experiment; but from what has already been stated with reference to the pathological condition of the testicle in cases of gonorrhoeal inflammation, we may safely conclude that Mr. Smith's idea that "the free division of the fibrous tissue enveloping the body of the testis, and the consequent removal of tension from the organ, was the secret of success," was erroneous.

Severe and unnecessary as the treatment seems to me, I think it is to be preferred to the calomel-and-antimony treatment still in vogue; for in all Mr. Smith's cases treated by incision no other remedies were employed, and the patient escaped all the horrors which Mr. Smith in his paper so well describes, that I am tempted to quote his words: "We all know what a terrible ordeal of violent remedies a patient with acute inflammation of the testicle has to undergo. In the first place, he is obliged to lie

\* See *Lancet*, vol. ii. p. 149, 1864.

in bed for several days ; a large number of leeches, or the constant application of ice, is necessary to relieve the pain ; and at the same time the unfortunate wretch is compelled to undergo the process of severe purging and continued nausea by repeated doses of salts and tartar emetic, before any decided mitigation of his symptoms ensues."

Having thus briefly discussed the treatment usually adopted for acute orchitis, I must now lay myself open to criticism by stating that, in my opinion, the simplest, most satisfactory, and most efficient treatment is by opium. Until three years ago, I was in the habit of treating all cases of gonorrhoeal orchitis with calomel and opium, *i. e.* two grains of the former with one of the latter, night and morning ; and I never found it necessary with this treatment to give antimony, or to make use of local depletion. I object to antimony, not only because it is unnecessary, but also for the reason that patients with orchitis almost always complain of nausea ; and it seems to me cruel to add more to the patient's sufferings than can possibly be avoided. Local bloodletting is undesirable : firstly, because it is unnecessary ; and secondly, because, if the leeches be applied to the scrotum, it is often difficult to arrest the hæmorrhage without causing the patient pain. In private practice there are many inconveniences connected with bloodletting in such cases, and these ought to have due weight with the surgeon. I was induced to leave off giving calomel in these cases from having observed the following case. I was sent for late one night to see a gentleman, who was said to be dying ; and on my arriving at his bedside, I saw him in what appeared to be tetanic convulsions. I was told that he had been suffering from orchitis, and that, at the advice of a medical man, he had been taking calomel and antimony, and rubbing blue ointment into the scrotum over the inflamed testicle. The suffering was so acute that the poor fellow was screaming with the pain ; the pulse was 160, and there was profuse sweating. I found that he was already salivated ; the testicle was enormously swollen, acutely tender (as well it might be), and looked as if suppuration was going on. Hot opiate fomentations were applied to



the part, and a large dose of opium given. The following morning the pain had subsided; and finding so much improvement, I continued the opium and the fomentations. I confess I was surprised to find that in three days, without any other remedy save a purge, the pain quite vanished, and the swelling and tenderness considerably subsided. In the course of a few more days the swelling had quite gone, and the patient was able to resume his usual avocations. This case was so striking in its result, that I resolved to treat the next case I met with in the same way, and see whether the opium really influenced the course of the malady, or whether it had only been useful to allay the irritation set up by injudicious treatment. Accordingly, in the next case that came under my care, having first purged the patient with an ordinary senna draught, I commenced giving a grain of opium night and morning. The pain was quite relieved after two grains had been taken; and in three days all the tenderness had gone, and much of the swelling. I then, bearing in mind the pathological condition of the organ, prescribed twenty drops of the acid tincture of steel three times a-day; and in a week from the commencement of the treatment the patient had quite recovered. Since that time I have always treated acute orchitis on this plan. My colleague Mr. Pick, and several of my friends who have been induced to try it, have met with equally satisfactory results; so that I think I am not carried away by my own prejudice when I advocate this simple treatment in preference to the old and complicated one. The two following cases I give because they were treated in the wards of the Hospital, and were seen by many persons when under treatment; they are therefore more satisfactory to bring forward than the numerous cases treated in the out-patient department.

CASE I.—W. H., æt. 20, was admitted into the Belgrave ward Sept. 30th, 1868, with acute orchitis. One month before admission he contracted a gonorrhœa, for which he had had no special treatment. Two days before admission he was attacked with very severe pain in the left testicle. On admission, the testicle and cord were much enlarged, and he complained of extreme pain. There was considerable effusion into



the tunica vaginalis; the tongue was coated, and the bowels confined. A senna draught was ordered immediately; and as soon as the bowels had been well opened, he was given a grain of opium night and morning, and the testicle was kept enveloped with a lotion of Goulard and tincture of opium. On the 1st October all the pain had subsided, but as there was great tenderness, the opium was continued. On the third day all the tenderness had disappeared, and the swelling had much diminished. Oct. 4th. The swelling was still subsiding, and there was no pain or tenderness. He was then ordered tinct. ferri perchloridi  $\mathfrak{m}$  xx. in water, three times a-day; and on the 7th he was discharged quite well.

CASE II.—F. W., æt. 17, a thin delicate boy, was admitted into Harris ward Nov. 5th, 1869, with acute orchitis. He had had gonorrhœa for three weeks previously. On admission, there was no discharge from the urethra, but the left testicle and cord were inflamed and acutely painful. After having been purged, he was given a grain of opium night and morning, and the testicle covered with hot opiate fomentations. On the 8th, all the pain and tenderness had disappeared, and the swelling had materially diminished. Tinct. ferri perchloridi  $\mathfrak{m}$  xx. was ordered three times a-day; and he left the Hospital quite recovered on the 13th, no fresh discharge having appeared.

In addition to the purging, which is essential before the opium treatment is commenced, I direct that the testicle should be kept enveloped in a hot fomentation of Goulard and laudanum, which is of considerable use in producing ease.

It may probably be asked, if, in all the cases I have treated, I have found the plan advocated equally satisfactory. I can answer, that I have only had one case—that of an out-patient obliged to go on with heavy work—in which I have had to modify the treatment. In that case, the inflammation, which was intense, had existed some days before I saw the patient, and I thought that there was lymph effused in the tunica vaginalis. In this case, the opium, at the end of three days, had not produced the usual effect, so I added one grain of calomel to each pill. In two days such marked improvement took place, that I was able to leave off the calomel; but this patient was under treatment for two instead of one week, which is the time I consider necessary for recovery if these means be adopted.

There is another mode of treatment I have not yet noticed: to wit, strapping of the testicle. I do not doubt for a moment that the strapping, once applied, produces

considerable relief to pain; but I object to it on the same principle that I do to antimony, bloodletting, and especially to a deep free incision into the testicle, namely, that it is unnecessary, and causes considerable and avoidable pain. If one application of strapping were sufficient, there would be less objection to its use; but to be of real service, it ought to be reapplied at least once in twenty-four hours; and the discomfort of removing the straps is almost as great as putting them on, and if the surgeon does not possess the greatest delicacy of touch, the patient is much to be condoled with. As contrasting the two modes of treatment, I will briefly mention an instructive case that came under my own observation. Before I commenced the opium-treatment, I had a delicate lad with an acute orchitis, which I treated in the usual way; and notwithstanding every care, it was six weeks before he was able to resume his studies. About a year ago, he was again suffering from a similar attack. This time I treated him with opium, followed up by the tincture of the perchloride of iron; and in one week he was about again. The last attack was not at all less severe than the first; but the difference of the result may be entirely attributed to the treatment.

In concluding these few remarks on the treatment of a very important surgical disease, I think it may be claimed—1st, that the treatment here advocated is much less severe and damaging to the health of the patient than other modes; 2d, that the process of recovery is more rapid, and that, with the exception of abstaining from stimulants, the patient can live as usual; 3d, that in very many cases no return of the gonorrhœal discharge takes place (which I attribute to the beneficial action of the iron).

Finally, I would urge a trial of the plan sketched out. Every surgeon has the opportunity of treating many such cases in the course of a year; and I feel confident that if opium be once fairly tried, the marked beneficial influence it exercises over the disease, and the great comfort it brings to the patient, will insure its general adoption.

JAMES ROUSE.

## XVIII. REMARKS ON A CASE OF LOCOMOTOR ATAXY WITH HYDRARTHROSIS.

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THIS case I was fortunately able to show to M. Charcot when he was in Leeds. Mrs. F. had been long under me with the group of symptoms called locomotor ataxy very well marked. Some months ago she noticed her right knee beginning to swell; the swelling was quite painless. Her right knee now presents the form of joint-mischief noticed by Charcot, Ball, and others, to a prominent degree. I had intended to have published a woodcut of the knee; but it is so exactly like the woodcut published by Ball, that I forbear.

In April 1869 the right knee measured over the patella 15 inches, and  $15\frac{1}{2}$  inches about one inch above the patella. The knee-joint is evidently much distended by effusion into its cavity. The swelling is more marked on the inner side of the knee, and extends farther up the thigh than that on the outer aspect of the joint. There is also some slight swelling along the anterior edge of the tibia, just below the patella, and on either side of the ligamentum patellæ. On pressure over the patella some creaking is detected.

*History.*—There was no swelling of the knee until last April. For a time the patient thinks it varied in size; but “now it is always the same.” There is no pain in it, and the woman does not feel her right knee to be any weaker than the left. The knee is never hot, and has not been so at any time since the swelling showed itself. The patient has not received any injury to the knee of which she is aware. She can extend the leg on the thigh perfectly well; but the distension of the



synovial sac will not allow of the knee being completely flexed. The left knee and other joints are normal.

I have to thank Mr. Bradley for kind assistance in taking measurements of the joint. The size of the knee has been remarkably reduced by pressure.

T. C. ALLBUTT, M.D.

## XVIII. REPORT OF THE CURATOR OF THE PATHOLOGICAL MUSEUM.

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IN accordance with the plan adopted in the last volume of the *St. George's Hospital Reports*, it is proposed, in the present paper, to pass briefly in review the records of the Post-mortem Theatre for the past year; not with a view of presenting the reader with a complete and elaborate analysis of the results of all the examinations, but simply to allude to any points which may seem of interest or out of the common.

It has been deemed advisable to pursue the same plan as that adopted last year, taking each organ in rotation, and alluding to such morbid appearances as were presented, without any attempt at a perfect classification of the various pathological states.

THE BRAIN.—In eight cases only was the head examined when death had occurred from injury to this part; and, curiously enough, in three cases the injury was the same, and one of not very common occurrence, viz. *fracture of the skull*, causing *rupture of the lateral sinus* and compression of the brain. In one man (83)\* the fracture ran from the internal occipital protuberance, across the right side of the occiput, through the anterior inferior angle of the parietal bone, and terminated in the squamous portion of the temporal bone. This had caused a very considerable rent in the dura mater, and had laid open the lateral sinus, from which blood had been poured out into the cavity of the arachnoid to a very large extent, causing considerable compression of the brain. The injury was produced by a fall from a cart, and the patient lived five days after the accident, remaining in a state of unconsciousness throughout. In the second case (170) the fracture was confined to the occipital bone, and was slight in extent, extending only from the external occipital protuberance to the foramen magnum. It had produced a rent in the lateral sinus sufficiently large to admit a crow-quill. The blood which had been poured out was found principally in the neighbourhood of the pons Varolii and medulla oblongata, and had extended from thence down into the cavity of the spinal arachnoid; a point of considerable interest, as demonstrating the continuity of the two arachnoid cavities. The injury was produced by a fall from a scaffold, and death had taken place prior to his admission into Hospital.

\* The numbers in parentheses refer to the folio in the Hospital Post-mortem Book on which the case is described, and to which reference can be made.

In the third case (117), the fracture was of much greater extent, and was caused by a fall downstairs. The patient had evidently fallen forwards and struck the lower part of his forehead, as the roof of the orbit and the cribriform plate of the ethmoid were extensively shattered, and the orbit was full of blood. From this point a linear fracture extended directly backwards through the base of the skull, passing through the petrous portion of the temporal bone, through the jugular foramen, and across the occipital bone almost to its upper border, passing across and lacerating the lateral sinus for the extent of half an inch. An enormous quantity of blood had been poured out, so that the surface of the brain on the affected side was covered by a layer of great thickness, which had caused material compression of the brain.

Another case of injury to the head, which was examined after death, was a case of fracture of the base of the skull (161), and presents some points of interest. The man lived fifty days after the accident, which was a fall from a scaffold, and the immediate cause of death was general encephalitis; there being a large quantity of sero-purulent fluid in the arachnoid and subarachnoid cavities, and the brain-substance being generally soft and the central parts broken down. The fracture extended through the squamous and petrous portions of the temporal bone to the middle lacerated foramen, and though such a length of time had elapsed since the injury, there was not the slightest effort at repair; the two surfaces of bone lay in apposition, but could be easily moved on each other, and appeared exactly like a fracture of only a day or two's standing.

In eleven cases I have noted that the brain was *congested*: and by the term 'congestion' I mean a well-marked condition—not simply a slight fulness or turgidity of the vessels, but a state of brain in which, owing to the increase of size of the vessels, the white substance assumes a general pinkish hue, and the gray matter is of much darker colour than natural. And this condition of congestion, noted in eleven cases, appears to be due to very different causes, though in every case there was also great congestion of the lungs—whether the cause or the result of brain-congestion, it is in some cases difficult to decide; no doubt, in some instances, as in a case of pericarditis with effusion of blood into pericardium (47), or a case of bronchitis with disease of the heart and kidneys (374), the congestion was due to pulmonary obstruction, whereby all the organs were full of blood. And again, in a case of suicide by hanging (23). In this latter case the man had hung himself, but was cut down before life was extinct, and was brought to the Hospital in a state of insensibility, but extremely restless, so that restraint was necessary to keep him in bed; he had also attacks of spasmodic dyspnoea and opisthotonos. He gradually recovered partial consciousness, but suffered much from difficulty in swallowing and apparent accumulation of mucus in the trachea and lungs. He gradually became again unconscious, and died about sixty hours after his attempt at suicide. Upon post-mortem examination the lungs were found to be much congested and œdematous, and there was some emphysema of the right upper lobe. The bronchial tubes were much congested, and full of thick



tenacious muco-purulent fluid. The left ventricle of the heart was closely contracted; the right dilated, and containing a decolorised clot, with some fluid blood. The brain was very turgid, and full of black fluid blood, the sinuses being especially distended. The whole of the white substance was of a pinkish hue, and the puncta vasculosa increased in size. The congestion was especially great about the medulla and pons Varolii.

In a case where death was supposed to have taken place from *sun-stroke* (208), the brain was also found much congested; but in addition to this there was very considerable fatty degeneration of the heart, and it would appear that failure of the heart's action was the primary cause of death. The history of the case was very defective; but it appears that the man had been at work in the sun during a very hot day, and that he was suddenly seized with a fainting-fit, and dropped down insensible. When he was admitted he was unconscious, and in a moribund condition, with a small and rapid pulse. Upon post-mortem examination the brain was found to be intensely congested and of a pinkish hue; the puncta vasculosa were greatly increased in size and number, and around the larger ones there was a distinct halo of discoloration, due to the soaking of the blood through the walls of the vessel; the ventricles contained a quantity of deeply-tinged bloody fluid; the substance was of firm consistence, and the central parts were not broken down. The lungs were enormously congested, especially at the lower part, where they had the appearance of pulmonary apoplexy, except that the blood was not in circumscribed patches, but uniformly diffused through the whole. The heart was quite uncontracted and empty, the structure was exceedingly fatty and rotten, and the valves blood-stained. The blood was universally fluid.

In a case in which a man was picked up dead in the Park, having committed suicide by poisoning himself with hydrocyanic acid (186), the brain was found to be much congested and also full of fluid; on section, serum ran out in a very considerable quantity, and there was a large collection in the ventricles.

A woman who died in the Hospital with acute mania presented, as the only discoverable lesion, intense congestion of the brain (347). She was a married woman, æt. 30, who had been subjected to much ill-treatment by her husband. She applied at the Hospital of her own accord for a reducible hernia, and while she was being examined she was seized with an epileptic fit; she became much convulsed and foamed at the mouth; subsequently she became noisy, and could with difficulty be restrained. After a time coma supervened, and she died next day. After death the brain was found to be intensely congested. The vessels on the surface of the brain were full of blood, and there was a considerable amount of blood-stained fluid in the arachnoid cavity. The whole cerebral substance was intensely injected and full of blood, especially the fornix, velum interpositum, and central parts of the brain; there was a little bloody fluid in the ventricles.

In a girl, æt. 16, who died of chorea, with pericarditis, the brain presented a most unusual appearance. Upon making a section and

exposing the centrum ovale minus, a very marked difference was observed between the anterior and the posterior part of the brain-substance; the former being intensely congested and of a deep-pink colour, the latter extremely pale: this condition was the more marked, because the congestion terminated quite abruptly along a line corresponding externally to the fissure of Rolando, internally to the commencement of the anterior horn of the lateral ventricle. Upon making sections farther through the brain, the same condition was seen to exist throughout—congestion of the anterior half; anæmia of the posterior. On the surface of the brain the same state of things presented itself: the vessels of the anterior half of the brain were turgid with blood; those of the posterior half were collapsed and empty. The vessels at the base of the brain, and the large vessels of the neck, were carefully examined; but there was nothing found to account for this appearance. The smaller vessels were examined microscopically, both in the congested and non-congested portions, and they were found to be quite natural. Beyond this the brain was perfectly natural, and there did not seem to be any difference in the consistence of the two parts.

In nine cases the brain, when examined, presented the opposite appearance to that of congestion: namely, *anæmia*, conjoined with a greater or less excess of serum, so as to render the brain-substance doughy or putty-like, and in all the cases but one was connected with disease of the kidneys. One case only requires more than a passing notice, and this was of very considerable interest. It was that of a man (62), who was admitted as a patient of the Hospital in 1866, suffering from aphasia, with right hemiplegia coming on after an attack of rheumatism, from which he gradually recovered. When admitted during the past year, he was apparently suffering from disease of the kidney, and from this he died. Upon examination of the head after death, the dura mater was found to be very adherent to the bone; the arachnoid opaque and thickened. The brain-substance was very pale and anæmic, but was otherwise natural, and there did not appear to be any marked difference between the two hemispheres. The middle cerebral artery on the left side, just after its origin from the carotid, was found to present an aneurismal dilatation of about the size of a pea. The artery coming off from the front of this dilatation was found to be plugged by a very firm old mass of fibrine, which was quite adherent to the walls of the vessel, and could not be separated therefrom. This plug was channeled through its centre, so as to allow a small quantity of blood to pass through it. The heart was very large and dilated, and there was old thickening of the mitral valve. In another case of embolism of the cerebral arteries, both carotids were found to be plugged (87). The patient was a servant, æt. 31, who had never had rheumatism; and after suffering for some time from pains in her chest, was suddenly attacked with right hemiplegia and aphasia. Six days after, she became paralysed on the left side; and speedily becoming comatose, died on the tenth day.

Upon examination of the body after death, the brain was found to be rather pale and flattened on the surface. In the substance of the

*right* hemisphere, on the outer side of the corpus striatum, and corresponding to the position of the frontal convolutions on the surface of the brain, there was a small patch of softening not larger than a hazelnut. There was no lesion on the *left* side. The carotids on both sides were plugged by masses of decolorised fibrine; the plug on the right side extended much farther than on the left, and there was also on this side a second plug in the middle cerebral, just where it breaks up into a mesh of branches. In addition to this, there was a large plug in the right common carotid. The cavities of the heart were open, and contained masses of decolorised fibrine, which were entangled in the muscular trabeculae. There was a quantity of fibrinous vegetation on the auricular surface of both the mitral and tricuspid valves. The mitral was extremely diseased; it was much thickened, and there was a circumscribed opening separating the curtain of the valve from the muscular columna. This opening was ragged, and apparently arose from an abscess in the muscular structure, extending into the columnae carneae. It is interesting to note, in connection with the softening on the right side, the fact that the middle cerebral artery was plugged. Though both carotids were occluded, in consequence of the free anastomosis through the circle of Willis, sufficient blood was supplied to the brain to prevent softening, which would have resulted if the current had been completely arrested.

Though the sudden plugging of these large vessels produced a certain effect—*i. e.* paralysis—this effect was only transient, and as soon as the collateral circulation was established began to pass off; for it should be noted, that she had already begun to recover the use of the right side prior to the second attack, and the speech also improved slightly. There can be little doubt that the patch of softening found after death was due to the plug in the middle cerebral, where the anastomosis is less free, inasmuch as it was found exactly in that situation where this lesion is seated, in cases where only the middle cerebral has been plugged.

In a third case, in which one of the cerebral arteries was found to be blocked (106), the cause appears to have been different from the two preceding cases. It appears to have been not so much a case where a fibrinous block had been carried from the heart or elsewhere, and been lodged in the vessels of the brain, as an instance of what has been described as the “formation of a coagulum in the cerebral arteries themselves.”\*

The patient was a man who had been discharged from the 1st Lifeguards for swelled testicle, and who had been a great drunkard. Two months previously he had been suddenly seized with right hemiplegia and aphasia; and from this he gradually recovered, so as to be able to walk with the aid of a stick, and to talk perfectly. On the day of his admission, he was again seized with a fit; he became completely aphasic, with paralysis of the *right* extremities and the *left* side of the face. He subsequently became unconscious, and died on the third day after ad-

\* On this subject see a paper by Dr. Dickinson in the first volume of these *Reports*.



mission. Examination of the body showed that there was a small patch of broken-down brain-matter, mixed with semipurulent fluid, between the optic thalamus and the middle cornu of the lateral ventricle on the left side, and that the brain-substance around was slightly softer than in other parts. There was also considerable softening in the centre of the pons. This, however, was evidently of much more recent date; for in no part was the brain-substance entirely broken down. The basilar artery, throughout its whole length, was found to be completely filled by a plug; the clot was not of very firm consistence, and was of a pinkish colour; it was, however, adherent to the walls of the vessel, but could be removed without much difficulty, leaving the lining membrane smooth. It entirely filled and occluded the artery. The heart was examined, and found to be quite natural; there was no thickening or deposit on the valves, and no little shreds of fibrin embedded in the muscular trabeculæ.

In a case of *abscess of the brain* (7), the pathology of the case was somewhat obscure; inasmuch as, in addition to a large abscess in the left hemisphere, there was another and smaller one, evidently pyæmic in character, in the right side; and there was also pyæmic deposit in the lungs, so that it was difficult to say whether the larger abscess was due to secondary infection, and if so, what the cause of the pyæmia was; or whether this abscess of the brain was the primary disease, and had been the cause of the secondary contamination. The history of the case would lead one rather to favour the second hypothesis. The patient, a woman, had been under observation for a period of three months, complaining of pain in the head, loss of memory, and general lassitude; and in this condition she continued, gradually getting weaker, but without presenting any marked symptoms, and certainly none of pyæmia; and died. Examination of the body revealed an enormous abscess, occupying a great part of the left hemisphere, extending as far forward as the Sylvian fissure, and reaching almost to the surface of the brain, being covered over by a thin layer only of cerebral matter. The abscess was filled with red grumous pus, and surrounded by an area of yellow softening. In the middle of the right centrum ovale minus was a small abscess, the size of a pea, surrounded by a zone of congestion, and which was looked upon as pyæmic; and in confirmation of this, undoubted secondary deposits were found in the lung. No cause could be discovered for the pyæmia externally; there was no wound or abrasion in any part of the body, and she had not been recently confined. All the other internal organs were healthy. Looking to the history of the case, and the appearance of the pus in the larger abscess, resembling broken-down blood, it seemed probable that she had had, as a commencement of her illness, an extravasation of blood in the brain (and it should be mentioned, as favouring this idea, that her arteries were very atheromatous); and that this clot had broken down and suppurated, and been itself the source of the purulent infection. No history of any fit was, however, obtained.

Seven cases of *apoplexy* were examined in the post-mortem theatre; and in six of these they presented the usual train of pathological ap-

pearances found in cerebral hæmorrhage; that is to say, there was granular degeneration of the kidneys in four, due to a gouty cause; there was hypertrophy of the left side of the heart, and atheroma of the arteries of the brain. In all six cases the rupture appeared to have taken place at or about the same place, namely, in the corpus striatum or optic thalamus, and in five it was situated on the left side. In the remaining case this state of things was reversed: there was no granular disease of the kidney, no hypertrophy of the heart, no atheroma of the arteries, and the clot was not situated in the corpus striatum, but in the substance of the left hemisphere, above the level of the ventricles. In this case there was extensive cirrhosis of the liver.

Six cases of *meningitis* came under notice. In five, it was tubercular in its character: tubercle being present not only in the lungs, but also, in every case, on the surface of the brain, embedded in the pia mater, and especially abundant in and about the Sylvian fissure. The remaining case (76) was one of considerable interest, on account of the great amount of disease found after death, and the almost entire absence of symptoms during life. The patient had been accustomed to lead an irregular life, and had been very violent in his temper; but had always enjoyed good health until the day before his admission, when he was attacked with violent pain in the head. His case was, however, regarded as a very trivial one, as he did not present any urgent symptoms; but in the evening of the same day he became suddenly comatose, with symptoms resembling uræmic poisoning, and died the following morning. Upon examination of the body after death, the calvarium was found to be much thickened, especially at the back part, and to present a porous and worm-eaten appearance. All over the surface of the brain, but especially over the left hemisphere, was a uniform and diffused layer of solidified lymph of a greenish colour: the lymph was situated beneath the visceral arachnoid, and formed a layer at least a quarter of an inch in thickness over the surface of the brain, so that the cineritious matter was quite hidden from view. The effusion extended over the sides of the hemispheres, and to a slight extent over the base; the velum interpositum also contained a small amount in its meshes. The layer could be easily peeled off, leaving the surface of the brain perfectly smooth. With the exception of commencing granular degeneration of the kidney, the other organs of the body were natural.

THE SPINE.—In the course of the past year comparatively few cases of disease of the spine came under notice. Some few cases of *softening* of the cord, to a greater or less extent, were examined, but present nothing out of the common, and call for no special notice. In all the cases they appeared to be idiopathic, and due to some inflammatory process. The extent of the softening, and the region in which it was situated, varied in the different cases: thus in one it was small in extent, and situated in the upper region of the spine; and in another it extended from the sixth cervical to the twelfth dorsal vertebra. But the cases are interesting rather from a clinical than a pathological point of view, and will doubtless be noted in another report.

Three cases of *tetanus* died in the Hospital. The spine in one of these cases (22) was submitted to a most careful examination by Dr. Dickinson, who has published an elaborate description of it in the *Medico-Chirurgical Transactions*, to which reference may be made.\* In the remaining two cases the cord was also subjected to microscopic examination, after the manner proposed by Dr. Lockhart Clarke; in the one case (4) without finding any morbid lesion, the structure being perfectly natural throughout; the cord moreover to the naked eye appeared perfectly natural; there was no undue vascularity of the membranes; and the whole cord was firm, and of the same consistence throughout. In the other case (151), the cord was much congested, marked over on its surface by large vessels, and of a pinkish hue; opposite the sixth cervical vertebra was a patch about the size of a pea, where the substance of the cord was quite softened and broken down; this portion was distinctly circumscribed, and when the broken-down material had been washed out, left a little cavity. The cord was subjected to microscopic examination according to the method proposed by Dr. Lockhart Clarke. In every region of the spine from which sections were made, the vessels were seen to be very much enlarged and full: the change, however, was much more marked in the gray substance of the cervical enlargement than in any other part; and at the same time the whole of the gray matter was much more congested than the white matter throughout the entire length of the cord. In the cervical region the vessels in the gray matter were enormously enlarged, and appeared to be completely choked up with corpuscles; here and there they appeared to have given way, and extravasations to have taken place. These extravasations were of small size, dimly granular, and became deeply tinged with carmine; so that the sections presented here and there little patches of a dark-crimson colour imbedded in the tissues of the cord. After immersion in chromic acid, the softened portion above referred to could not be found; so that unfortunately no separate examination of this part could be made.

An interesting case of *injury to the spine* was examined (84). The patient fell from a scaffold a distance of twenty feet, and was admitted with complete paralysis, and loss of sensation of all the limbs and the muscles of the chest. No displacement of the vertebræ could be detected, and the movements of the head were perfect. He died in about forty-eight hours after the accident. Upon examination, the bones of the spine were found to be perfectly natural and uninjured. Upon making a section of the cord, an extravasation of blood, about the size of a hazel-nut, was found in the central matter opposite the fifth and upper part of the sixth spinal nerves; there was some amount of yellow softening around the extravasation, and the whole cord was softer than natural.

THE LUNGS.—In a large number of the cases examined, the lungs were found to be more or less in a diseased condition; and though the

\* See *Med.-Chir. Trans.* vol. li. p. 265.



great majority of these cases were those of the ordinary forms of disease, and present no features out of the common, and therefore require no particular remark, there are some few cases which are interesting, and deserve a passing notice.

Considering, in the first place, the cases in which effusion had taken place into the pleura, we find a large number of cases in which there was *hydro-thorax*, the chest containing a large quantity of clear watery fluid, which compressed the lung, but left the pleura covering it smooth, shining, and natural, or nearly so; and was therefore due, not to inflammatory action, but to mechanical obstruction. In all these cases, as might be imagined, with one exception, there was granular degeneration of the kidneys. In the case in which this disease did not exist (173) there was very extensive cirrhosis of the liver.

Several cases of *inflammation of the pleura*, where lymph or pus was found in the cavity, were examined. In one of these (145) the pus was contained in a circumscribed sac. The man during life presented symptoms of pleurisy; but after death the right lung was found to be adherent, by firm, tough, old adhesions, to the parietes of the chest, except to a small extent at the lower part, where a circumscribed cavity had been formed between the lung and chest-wall, and was filled with thick pus, and lined by a limitary membrane; the abscess thus formed had extended inwards to some extent, and materially compressed the lung. The surface of the ribs was quite smooth and healthy. In one case of pleurisy, where the surface of the lung was covered with a thick layer of shaggy lymph, the inflammation was caused by a hydatid cyst of the liver, which was in a state of suppuration (24). In another case (238), where the chest was full of pus, the inflammation had been set up by extensive epithelial cancer of the œsophagus. Seventeen cases of *pneumonia* were examined, and in five only out of these seventeen cases did the disease appear to be purely idiopathic, and not the result of some previously existing disease in other organs which might have predisposed the patient to the attack. In eight of the cases the disease was in the second stage, or that of red hepatisation; while in the remaining nine cases the disease had progressed to the third stage, the lung-tissue being infiltrated with pus, and in three cases completely broken down. In one instance the lung-structure presented a rather peculiar appearance (6). The lower lobe was very firm and solid, and sank in water; on section it appeared to be marbled or mottled, of a dark-red colour, intersected by numberless deposits of a whitish material, apparently the result of infiltration of the products of inflammation, inasmuch as when examined microscopically they presented nothing but a mass of ill-formed exudation-corpuscles. Seventeen cases of *bronchitis* were also examined, but require no special remark, with the exception of one case (30), in which the lungs were quite solid, and the usual healthy crepitant sensation was entirely absent. Upon being placed in water they sank. This appearance of solidification was especially marked in the lower lobe, and more so in the left lung than the right. On section the bronchial tubes, even to their minutest ramifications, were found to be filled with a peculiar grayish-white granular material, which at first sight gave

one the idea of somewhat-softened tubercle more than of anything else; it was in no way adherent to the mucous membrane, as it could be easily brushed off with the tip of the finger or a gentle stream of water. Upon examination under the microscope it was found to be made up entirely of exudation-cells, free nuclei, and granular matter, with here and there an ill-formed pus-cell. The addition of acetic acid made the nuclei very distinct; it was therefore believed to be simply the inspissated secretion of the bronchial tubes. The mucous membrane of these tubes was enormously congested, and presented a dark velvety appearance.

The cases of *phthisis*, twenty-eight in number, call for no special remark.

Eight instances of *apoplexy* of the lung came under notice: in seven of these it was the result of hypertrophy of the heart; the hypertrophy in five cases being secondary to disease of the kidney; in two, due to extensive mitral disease.

The remaining case (23) of apoplexy of the lung was one of considerable interest. The patient, a butcher, was stung by a "black insect" on the cheek; in a couple of days this was followed by excessive inflammation of the face, and he was admitted into Hospital, when the left cheek was seen to be enormously swollen, the submaxillary and parotid glands enormously swollen and enlarged; there was no delirium. He died in two days of exhaustion.

Upon post-mortem examination the left side of the head and face was found to be enormously swollen, livid in colour. Under the left eye the skin was gangrenous in two places, each about the size of a six-penny-piece. The body was otherwise natural, save that the superficial veins on the neck and trunk were well marked. The upper lobes of both lungs were perfectly natural; but in the lower lobes, about the middle and posterior parts, were several small patches of pulmonary apoplexy. These varied in size, from that of a walnut to a pea. The left ventricle of the heart was partially contracted. The right side was open, and dilated to a great extent. The tricuspid orifice admitted five fingers. The blood was generally fluid. The liver was natural. The spleen very diffuent. The kidneys congested, their capsules adherent and splitting. The tongue was large and flabby. The mucous membrane of the pharynx and larynx was congested. The left parotid gland was greatly enlarged, gorged with dark blood, and infiltrated with fluid; this fluid ran out in considerable quantities on cutting into the gland. No enlargement of the lymphatics or lymphatic glands could be detected.

In a case of *purpura* (280), affecting the external cutaneous and internal mucous surfaces, the lungs were studded over with a number of minute extravasations of blood, which were situated beneath the serous covering, and also on the chest-wall beneath the pleura costalis. This condition was also noted in two other cases (313 and 348), in patients who had died of pyæmia.

There were eighteen cases of *pyæmia* examined during the year; and in order to show the great frequency with which the lungs are affected, it may be mentioned that in seventeen pyæmic deposits

were found in the lungs. The one case in which these secondary abscesses were not present in the lungs, though found in other organs, is one of particular interest, as it belongs to that class of cases which have been termed "spontaneous pyæmia;" that is, cases where no external wound or abrasion, or other source of purulent infection, has been present, or at all events discovered.

The case (95) was that of a labourer, who had been ill six weeks before admission. He got wet through, and was seized with cough, rigors, pain across the back and loins, and swelling of the legs. There was no history of rheumatism nor of any previous illness, and there was no wound. He was admitted in so precarious a condition, that a careful examination could not be made. He was cyanosed, and suffering from dyspnœa, with rattling breathing, and noisy capillary râles all over the lungs behind. The heart-sounds were natural; the urine albuminous. He sank and died quietly the day after his admission. Upon examination of the body after death the lungs were seen to be congested, and the bronchial tubes full of muco-purulent fluid. The liver and spleen contained pyæmic abscesses. The kidneys were coarse and congested. The intestines were quite natural, and there were no cicatrices of ulceration. The portal vein was natural, and contained a little fluid blood. There were no piles or ulceration about the lower end of the rectum, and there was no wound or abrasion in any part of the body.

In two cases of pyæmia following operations in which the cancellous tissue of a bone had been exposed, the condition of the veins deserves notice. In the one instance (120), amputation of the thigh had been performed; in the other (267), excision of the knee-joint; and in both cases osteo-myelitis, with subsequent pyæmia, had resulted. Upon examining the veins, it was found that the superficial femoral vein was quite natural until its junction with the profunda, and that above this point it was full of broken-down and suppurating clot; which was the case also with the profunda vein itself. When it is remembered that the nutrient vein of the bone empties itself into the middle perforating vein, a tributary of the profunda, it will be seen how certainly the purulent infection may be traced to the absorption of the morbid material from the venous channels of the bone itself.

Three cases of *cancer of the lung* were examined. In all these cases the disease was secondary to cancer in some other organ: in one, the uterus; in another, the kidney; and in a third, the larynx. In this latter case (160), there were only two small nodules of malignant disease in the lungs; the principal disease being situated in and about the vocal cords, which were much thickened and enlarged by a deposit of soft encephaloid material. The thyroid body was also affected.

In connection with these cases may be mentioned one of *malignant disease of the anterior mediastinum* (25). Upon removing the sternum at the post-mortem examination, a large soft mass was seen occupying the anterior mediastinum, and extending from the junction of the second costal cartilage to the sternum as low down as the ensiform cartilage. It completely covered the heart, and involved the roots of the lungs,



surrounding the vessels and bronchi. It presented a soft whitish appearance, but was much more spongy than true encephaloid usually is; under the microscope, however, it presented true and well-marked cancer-cells of large size, varying in shape, many with candate appendages, and with one or more well-defined nuclei; there was, however, found to be an unusual abundance of the fibrous stroma. The disease had extended by continuity into the lungs, the anterior parts of which were considerably affected. The morbid material could be traced extending along and surrounding the ramifications of the bronchial tubes. This case is interesting, inasmuch as it was an instance of true malignant disease of the anterior mediastinum, and not one of the usual form of "mediastinal tumours," which, although possessing some of the characteristics of malignant disease, nevertheless differ from them in their anatomical structure.

In a woman who died of *malignant disease of the bladder* (209), the bronchial tubes presented a peculiar appearance. Upon laying them open they were found to be exceedingly hard and rigid. This was due to a deposit under the mucous membrane of thin bony plates. These deposits varied in size, in some of the larger tubes being as big as threepenny-pieces; they extended into the small tubes as far as they could be traced. Examined under the microscope, they presented true bony structure.

An interesting case was examined of a man who was admitted into the Hospital with fractured ribs, having fallen off a cab (158). Upon post-mortem examination it was found that he was suffering from a *hydatid tumour of the lung*, and that one of the fractured bones had caused a small rent in the cyst, with evacuation of its contents into the pleural cavity.

ORGANS OF CIRCULATION.—Comparatively few cases of disease of the heart which came under observation present any features out of the common, or call for any remark.

A word may be said of the cases of *hypertrophy*, of which no less a number than forty-six came under observation. These were cases where the hypertrophy was well marked and excessive; not simply cases where there was slight thickening of the walls of the ventricles, or slight enlargement of their cavities. In one case, the heart, after being cleared of all clots, weighed thirty-four ounces; while several others weighed as much as twenty-six or twenty-eight ounces.

Of the forty-six hypertrophied hearts, the enlargement was believed to be due in fourteen instances to valvular disease, in twenty-eight cases to kidney-disease, in three cases to long-standing and repeated attacks of bronchitis, and in the remaining case to extreme atheromatous deposit, with rigidity of the aorta. The form of the hypertrophy in the cases where it arose from kidney-disease deserves notice. It has for some time been observed, that when the heart becomes enlarged as the result of granular kidneys, it is the left side of the heart which becomes especially thickened, while the right side becomes dilated; and if there is any hypertrophy, it is accompanied by dilatation; is, in

fact, what has been termed "excentric hypertrophy." Thus, out of the twenty-eight cases where there was hypertrophy from kidney-disease, in eighteen it assumed this especial form. To quote only one case in illustration, where the kidneys were very granular, small, with numerous cysts on their surface, and with the secreting structure very much diminished. The heart was found to be enlarged, weighing eighteen ounces. The left ventricle was much thickened, its walls being at least twice their natural thickness; the right ventricle and auricle were much enlarged, so that their cavities were twice their normal size, and the right auriculo-ventricular opening so much dilated, as to admit the passage of the entire hand. The walls of the cavities on the right side were of about their ordinary thickness.

In connection with the subject of *fatty degeneration of the heart*, it is interesting to note, that out of fifteen cases of this disease, in which it was far advanced and death had occurred suddenly from pure failure of the heart's action, in nine cases the coronary arteries were more or less occluded by atheroma, or their orifices narrowed by atheromatous deposit on the aorta, which had encroached upon the openings into the small vessels connected with the heart, and thus diminished the amount of blood supplied to that organ. It becomes an interesting point to determine whether the fatty degeneration was due to the presence of the atheroma and the deficient flow of blood, or whether the same predisposition which disposed to the heart-disease was also the cause of the change in the coats of the artery. While alluding to these changes in the coronary arteries, it may not be uninteresting to mention a case which occurred during last year, and which confirms an opinion set forward by Dr. Dickinson in the *Pathological Society's Transactions*, and much resembles a case therein related.\* The case was that of a man (191), æt. 64, who was the subject of angina pectoris, was brought into the Hospital from the Park, and on admission was found to be dead. He was accompanied by a young woman, who stated that he had been in her company, and had suddenly complained of dyspnœa and tightness of the chest, and had fallen. From the fact that the glans penis was covered with spermatozoa, it was presumed that he had been indulging in sexual intercourse, the excitement of which had produced the fatal result. Upon examination of the heart, it was found to be of large size, and covered with a very considerable layer of fat; both ventricles were in a state of semi-contraction; the structure was rather soft, fatty, and rotten, and of a pale colour. The arch of the aorta was covered over by large patches of soft atheroma, situated beneath the lining membrane. One of these patches was immediately above the left coronary artery, the orifice of which it overlapped, and had contracted so much that it was impossible to introduce a probe. The orifice of the right coronary artery was also contracted, though not to the same extent, by the same cause. The arteries themselves contained one or two slight specks of atheroma, but were otherwise natural.

\* *Path. Soc. Trans.* vol. xvii. p. 53.



Two cases of *fibroid degeneration* of the muscular structure of the heart, with thickening of the endocardium, and believed to be due to syphilis, occurring as they did in patients the subjects of long-standing syphilis, came under notice. One of these (17) presented an interesting and somewhat rare pathological appearance—namely, an aneurysm in the septum between the ventricles. The case has been fully recorded in the *Pathological Society's Transactions*, and can therefore be only briefly alluded to here.\* The patient died suddenly while in the Hospital, having been admitted for some obscure affection of the heart. After death the heart was found to be very large, with adherent pericardium. The cavity of the right ventricle was much dilated; the endocardium much thickened, and of a pearly whiteness. The structure of the ventricle was intersected by fibrous bands and streaks, which intersected it in every direction. Just below the semilunar valves there was a pouch or aneurysmal dilatation, about the size of a pigeon's egg, and communicating with the ventricle by an opening sufficiently large to admit the little finger. The structure of the left ventricle was much more natural; its cavity was dilated. In the septum, between the ventricles, there was found to be a fluctuating swelling. This swelling proved to be a sac filled with blood, and communicating with the aorta by a small opening, not sufficiently large to admit the tip of the little finger, at the bottom of one of the sinuses of Valsalva, immediately behind one of the aortic valves. The sac was of large size, and appeared to be formed by a separation of the two layers of the septum ventriculorum from each other throughout their entire extent. The layer belonging to the right side of the heart was exceedingly thinned, and indeed in one place the muscular structure was entirely gone, and only the thickened endocardium separated the sac from the ventricular cavity. Projecting into the right auricle was a nipple-shaped prolongation of the sac, with an ulcerated opening at its extremity by which the blood in the sac communicated with the cavity of the right auricle. In the interior of the aneurysm was a small amount of laminated fibrine and some fluid blood. The edges of the opening by which it communicated with the aorta were rounded off and smooth.

In two patients, where death occurred from *pyæmia*, secondary deposits were found in the heart. In one case (16), in the muscular structure of the right ventricle, just below the semilunar valves, there was a small abscess the size of a hazel-nut, full of foetid pus. In the other case (371), where *pyæmia* had resulted from necrosis of the tibia, a small secondary deposit was found in the substance of the left ventricle. There were *pyæmic* abscesses also in the lungs, and the hip-joint was full of pus. In another case of *pyæmia* (349), the heart was natural in structure; but at the apex of the left ventricle there was a rounded mass about the size of a hazel-nut, which consisted of a cyst-wall, its interior filled with thick puriform fluid, which was found to consist under the microscope of ill-formed pus-corpuscles, none of

\* *Path. Soc. Trans.* vol. xix. p. 156.



them containing a compound nucleus. This cyst was believed to be a suppurating clot of blood. There was also found a small spot of suppuration in the substance of the heart in one other case (205), an instance of pericarditis and granular kidneys.

Among the cases of *valvular disease*, there is nothing which calls for especial remark, if we except one case (87), where an abscess appears to have formed in the muscular structure of the heart, close to one of the cusps of the mitral valve, and had burst, leaving a large ragged opening, which separated the flap of the valve from the muscular substance.

Three cases of *aneurysm* of the aorta were examined, two of which had proved fatal by rupture. In one case the aneurysm was in the ascending part of the arch, in another in the descending, and a third at the junction of the middle with the descending portion. One other case of aneurysm occurred: it was a very small one, situated upon the transversalis colli artery, and was in no way connected with the man's death, which was caused by phthisis.

THE LIVER.—Of the diseases of the liver, *cirrhosis* was found to be one of the most frequent. Of this there were twelve well-marked cases, where the disease was in a far-advanced stage, and had produced very material change in the structure of the organ. Besides this, there were several other cases where the disease was in an early stage, and was not the cause of the death of the patient. In three out of the twelve cases the cirrhosis was complicated by fatty degeneration of the organ. In one case (292) this was most marked. The organ was strongly adherent to the diaphragm by thick fibrous bands; it was very small, weighing 3 lb. 2 oz., and it presented a very peculiar appearance. The capsule was enormously thickened, and quite opaque; the surface was very irregular and nodulated, giving the appearance of extreme cirrhosis. On section, it was found to be very soft, almost fluid, and of a bright gamboge colour. Upon microscopic examination, it proved to be intensely fatty; not a single healthy liver-cell could be found; nothing but a confused mass of cells, granular and fibrous tissue; the whole being obscured by a multitude of oil-globules. The gall-bladder contained about a drachm of healthy bile. This was the only case in which the patient appeared to die directly from the disease of the liver; in all the other cases there was some other disease which was the immediate cause of death. Thus, in five cases an attack of bronchitis had occurred, and had carried off the patient; in two apoplexy was the cause of death; in another the bursting of an aneurysm; and so on. So that though cirrhosis of the liver existed, the death of the patient could not be ascribed directly to this affection; although, no doubt, remotely it was associated with the disease which produced the fatal result.

There were thirteen cases in which the liver had undergone the so-called *lardaceous* or *amyloid* change; but as there were some cases in which, though the liver was not affected, some other organ or organs were, it will, perhaps, be more convenient in this place to briefly

consider all the cases of amyloid degeneration, without regard to the special organ which was the seat of the change.

Taking all the cases of this disease, it is found that there were twenty-two cases in which one or more organs were affected; and as considerable interest has lately been shown in the pathology of this form of disease, each one of these cases will be briefly alluded to.

(16) E. F., æt. 17. History of blow on hip three months before admission. When admitted, she was suffering from symptoms of acute pyæmia, and a large suppurating swelling in the gluteal region. At the post-mortem examination, pyæmic abscesses were found in the heart, lungs, and kidneys. The bursa over the right trochanter major was much enlarged, and full of foul fetid pus, and there was a large abscess in the gluteal region. The liver was large, weighing 82 oz.; it gave a faint "amyloid reaction" with iodine, but to the naked eye did not present any marked change.

(30) T. H., æt. 30. Admitted with the history of "cough and cold" of one month's standing. When admitted, he was suffering from purulent bronchitis, from which he died. After death, the kidneys were found to have undergone a slight amyloid change, and to give a faint reaction with iodine.

(39) M. A. W., æt. 40. Also a case of bronchitis, of ten weeks' standing. After death, the kidneys were very fatty and slightly amyloid.

(45) R. B., æt. 32. Had suffered from diarrhœa for three years, "off and on." No history of abscesses, or syphilis, or phthisis, could be elicited. When admitted, he had a marked "lardaceous aspect." He apparently died from exhaustion from excessive diarrhœa. Upon examination after death, the liver was enlarged, weighing 6 lb. 10 oz.; it was hard and firm, and presented the appearance of amyloid disease, but gave no reaction with iodine. The spleen was large and firm, and gave a distinct amyloid reaction; the kidneys were large and amyloid; the intestines also gave a distinct amyloid reaction; the glands of the large intestine were much increased in size, but there was no ulceration or cicatrices of former ulceration. The mesenteric glands were considerably enlarged, and underwent a marked change with iodine. There was no cicatrix of a chancre, and no evidence of suppuration could be found anywhere.

(49) E. C., æt. 47. Admitted with a history of rheumatic fever seven years previously, and disease of the heart, from which she died. Post-mortem examination revealed extensive mitral disease. The kidneys were very large, weighing 20 oz. together; they were very fatty, especially the cones, and underwent a slight amyloid reaction with iodine.

(56) T. V., æt. 26. Died of phthisis. In the left lung was a large vomica full of thick pus, and the lung was full of tubercle; in the right were several small vomicæ. The kidneys were amyloid.

(77) A. E., æt. 47. Admitted with disease of the heart and general dropsy. This was followed by an attack of bronchitis. The kidneys only were affected by the amyloid change, and they underwent the faintest reaction with iodine.



(80) John D., æt. 28. Had served in the army in India, where he contracted syphilis. Had been under observation for six months for dropsy and albuminuria, from which he died. At the post-mortem examination the body was very œdematous. There was an indurated cicatrix on the penis. In the substance of the liver was a hard, whitish fibroid material, infiltrating the parenchyma, and probably syphilitic. The kidneys were very large, weighing 24 oz.; they were very pale on the surface, the tubes full and fatty; they underwent a marked amyloid reaction under the influence of iodine.

(82) C. S., æt. 30. Died of phthisis. The lungs were found to be full of tubercle and small vomicae. There was also tubercular disease of the larynx and necrosis of the thyroid cartilage. The liver underwent a slight amyloid reaction.

(105) S. R., æt. 48. Died of phthisis, of two years' duration. There was a large vomica at the right apex, and the left lung was almost solid with tubercle. The kidneys only were amyloid.

(114) T. W., æt. 73, was admitted for a wound of the hand, followed by diffuse cellular inflammation. He died from exhaustion on the twenty-fifth day after the accident. There was extensive valvular disease of the heart. The kidneys were large, slightly rough on their surface; the capsule adherent; the cones congested. They underwent a decided amyloid reaction with iodine.

(140) E. B., æt. 32, was admitted with ankylosis of both knee-joints, after "rheumatic fever" six months previously. He had also an enormous bed-sore. He remained in the house seven months, and gradually died of exhaustion from the excessive discharge from the sore, and latterly from diarrhoea. The liver was very large, of a light fawn-colour, and underwent a marked amyloid change. The spleen, kidneys, and intestines were also very amyloid.

(195) A. H., æt. 25. Died of phthisis, of about two years' duration. At the apices of both lungs were vomicae, evidently of very old standing. All the abdominal viscera were intensely amyloid, giving a most marked and characteristic reaction with iodine. The stomach and intestines were amyloid, and the small intestine contained a number of tuberculous ulcers.

(200) E. F., æt. 31. This woman was a patient in 1866, suffering from a swelling in the left hypochondriac region, which subsequently burst, and discharged a large quantity of pus. A sinus formed, and from it, up to the time of her death, there was a constant but varying discharge. At the post-mortem examination it appeared that the abscess had originated in the left kidney. All the abdominal viscera were distinctly amyloid.

(219) E. G., æt. 29, was admitted with hypertrophy of the cellular tissue of the labia and extreme cachexia. There was a history of syphilis. She died of exhaustion. At the post-mortem examination, all the abdominal viscera were found to be amyloid, the spleen presenting the most marked reaction. The labia were much ulcerated.

(241) J. T., æt. 49, was admitted with anasarca and albuminuria. The urine contained a very large amount of albumen. No history was



obtained as to the length of time the disease of the kidney had existed. Upon post-mortem examination the liver was found to be enlarged, weighing 60 ounces; the amyloid reaction with iodine was well marked; the kidneys were remarkable—their surface was coarse and granular. The capsule was removed with tolerable ease. The surfaces presented a mottled appearance, very different from the ordinary granular kidney. There were no cysts on the surface. The cortex was diminished. The Malpighian bodies were prominent. The amyloid reaction with iodine was most manifest. The spleen was waxy to the eye, and also amyloid. The intestines gave the amyloid reaction.

(246) H. S., æt. 20, was admitted with the history of ten weeks' illness. Auscultation showed the presence of fluid in the right chest. She rapidly sank, and died. Post-mortem examination revealed the presence of fluid and lymph in the right chest, and also in the sac of the pericardium. The abdominal organs gave a well-marked amyloid change.

(252) E. B., æt. 57, died of cancer of the uterus, with secondary cancerous deposit in the lungs. At the post-mortem examination the liver was found to be amyloid.

(270) M. F., æt. 40, died of cancer of the uterus of about six months' standing, and accompanied by profuse discharge. All the abdominal organs were in an advanced state of amyloid degeneration, and gave a very decided reaction with iodine.

(279) H. L., æt. 49, died from exhaustion from excessive discharge from sloughing of the foot, which exposed the tibia and bones of the tarsus. All the abdominal organs gave a faint amyloid reaction with iodine; to the naked eye they did not appear to have undergone any great amount of amyloid change.

(282) S. B., æt. 27, was admitted with hypertrophied labia and hæmorrhage from the bowels. She had had syphilis. She died of exhaustion. The liver was very pale, soft, and fatty; the spleen natural. Neither of these organs underwent the slightest reaction with iodine. The kidneys were pale, the structure fatty, and they gave a marked amyloid reaction. The intestines were also amyloid.

(379) E. H., æt. 44, died of phthisis, which had existed two years. At the post-mortem examination the whole of the upper lobe of the left lung was found to be converted into one enormous vomica. All the abdominal viscera underwent a marked reaction with iodine.

During the extreme heat of the summer of last year, two cases of *yellow atrophy* of the liver were admitted into the Hospital, and there died. One of the cases (196) was that of a coachman, æt. 27, who had been ill eleven days with vertigo and vomiting, and severe pain and tenderness in the epigastric and umbilical region, followed by yellow tinging of the skin. At the post-mortem examination permission could only be obtained to remove the liver. This organ was considerably atrophied. Its weight was just four pounds (the man being a tall well-built individual). It was very soft and shrivelled, and the capsule wrinkled. On section it was found to be of a slightly reddish-yellow or ochre colour. It was evidently much altered in structure, as it was

impossible to make out the definition between the several lobules. The smaller vessels were collapsed and empty, and very little blood ran out on cutting it. The portal vein contained a little thin watery blood. The gall-bladder was collapsed and almost empty, containing about half a drachm of slightly bile-tinged mucus. Upon microscopic examination no trace of hepatic cells was to be found; nothing but opaque masses of dark colour, brown granules, and a large proportion of oil-globules, with here and there fine needles of tyrosine.

The other case (237) was that of a girl, æt. 17, who had been ill seven days with jaundice. Previously she had always enjoyed good health. At the post-mortem examination the liver was found to be rather smaller than natural, and was extensively diseased. The cut surface was bright yellow, but not especially soft. This yellow colour was general, and not in patches. On examination under the microscope it was found to be in a most advanced stage of fat; very few cells could be seen, and those few were intensely fatty. A portion of the fresh liver "teased out" simply presented a mass of fat-globules, with here and there a liver-cell filled with fat.

An interesting case of *abscess in the liver*, for which it was difficult to assign any cause, was examined (130). An engine-driver had suffered from what he described as "dreadful pain in the pit of the stomach" for five weeks. When he was admitted he was evidently very ill, though his symptoms were obscure. He soon, however, developed signs of peritonitis, from which he died. After death there was found between the liver and the diaphragm, in the posterior peritoneal space, a large collection of pus; this communicated with a large abscess in the liver itself by an ulcerated opening large enough to admit the finger. The abscess was situated at the posterior part of the left lobe, and was as large as a cocoa-nut; it was full of thick creamy pus. Besides this there were two or three smaller abscesses in the liver. The structure of the rest of the organ was natural, and there was no disease in any other organ.

Out of the eighteen cases of *pyæmia* which were examined, and which have already been noticed, in six cases secondary abscesses were found in the liver. In all these cases but one they also existed in the lungs; this one case has already been referred to as a case of spontaneous pyæmia. The cause of pyæmia in these five cases was rodent ulcer of the face (287); amputation of the thigh (120); wound of the thigh (323); necrosis of tibia (335); and amputation of finger (313).

Among the cases of *morbid deposits* in the liver were six examples of *cancer*. These were all of the encephaloid variety. In three cases the disease appears to have originated in the liver, and no cancer was found in any other organ. In one of the remaining cases (18), the primary disease was scirrhus of the pylorus; in another (363), the pancreas was also affected, and to a greater extent than the liver; leading to the inference that the disease had originated in this organ. The remaining case was one of cancer commencing in the eye-ball (294), and was of considerable interest. The history of the case was, that he had had the eye-ball removed for cancer about ten months before his



death. The disease recurred, and he died exhausted from repeated attacks of hæmorrhage. At the post-mortem examination the orbit was found to be full of soft encephaloid matter; this had extended through the orbital foramen, and formed a large mass at the base of the skull. There was a second mass within the cranium on the left side, and a mass under the temporal muscle on the same side; and there were numerous nodules in the liver. The deposit had all the appearance of encephaloid cancer. Thus clinically this was an ordinary case of cancer affecting the eye and invading other organs; but microscopically it would scarcely have been recognised as an instance of this disease, as it did not present the ordinary anatomical characters of malignant deposit. It consisted, in the main, of extremely minute rounded or slightly oval cells, of about the diameter of lymph-cells, perfectly regular in size and shape, with well-defined outline, and for the most part containing a large nucleus. There was no appearance of what we should call ordinary "cancer-cells." The small cells present were imbedded in an extremely delicate and very obscure fibrous network.

Two cases were examined where *tubercle* was discovered in the liver. One of these was a case of tuberculous meningitis (324), with general tuberculous infiltration of many organs; this deposit being found in the brain, lungs, liver, spleen, and mesenteric glands. The other case (146) was one where the tubercle had evidently existed for some time, some of it being cretaceous.

An interesting case, as showing one way in which *hydatid cysts* may terminate, came under notice. The case (24) was one in which there was a large hydatid cyst in the left lobe of the liver. This cyst was in a state of suppuration, being full of extremely offensive pus. It was adherent to the under surface of the diaphragm and the abdominal wall.

THE SPLEEN.—There was scarcely any case of disease of the spleen which requires any special remark. In four cases *fibrinous blocks* were found in this organ; in three there were emboli washed from the surface of the valves of the heart; in two of the three cases there were no plugs in any other vessels, showing the great tendency there is for these little masses to be arrested in the splenic vessels; in the other case there were blocks in both middle cerebral arteries. The remaining case was one of cancer of the uterus, and there was no disease of the heart.

Out of the eighteen cases of *pyæmia*, secondary abscesses were found in the spleen in only two instances. No other case of disease of the spleen requires especial comment.

THE KIDNEYS.—Among the cases of disease of the kidney were forty instances of well-marked *granular degeneration*, where the kidneys were much shrunk, their capsules adherent, their surface granular, and the cortical portion sensibly diminished. Upon analysing these cases, it is found that in thirteen instances the degeneration was due to causes which maintain venous congestion of the organ, such as valvular dis-



ease of the heart; in eight it was due to gout, there being a history of this disease, and lithate of soda being found either in the structure of the kidney or in the toe-joints; in three cases it occurred in painters; in three in patients who had been accustomed to drink largely; in two it occurred in cases where there was the history of a well-marked attack of nephritis some years previously; and in the remaining eleven the cause was not ascertained.

Besides these forty cases there were three other instances where the kidney may be said to be in a state of granular degeneration, but which differed from the rest. They were believed to be cases of the large smooth kidney undergoing contraction. One case will be sufficient to illustrate the nature of the disease. In this (8) the kidneys had the appearance of granite externally; they were pale and mottled; their surface was quite smooth; the capsule was adherent and splitting. On section the secreting structure was found to be diminished by at least one-half, and to be of a pale colour; the medullary portion was much congested and well marked. Upon microscopic examination some of the tubes were found to be natural; others were enlarged; others, again, were shrivelled, contracted, and empty. The fibrous tissue was greatly increased.

One other case of *granular degeneration* of the kidney requires mention, as the cause of the degeneration was peculiar; it appeared to arise from deficient supply of blood to the organ (66). It affected only one kidney, the right one, which was very small, weighing only six drachms, and was in a state of true granular change; it was cystic on the surface, and the capsule adherent. The left kidney was very large and congested. The right renal artery, after passing from the aorta for about an inch, terminated in a rounded cul-de-sac, from which were given off two minute vessels scarcely large enough to admit a fine bristle; and this was all the vascular supply the kidney got.

A man who died in the Hospital of bronchitis (374), and had always enjoyed good health till a month previous to his death, presented a most marked example of cystic disease of the kidney. The organs were of enormous size, weighing together no less than 81 oz., and when removed from the body had the appearance of a bunch of grapes, they were so extensively lobulated and cystic; externally all trace of kidney-structure had disappeared, and they seemed to be made up of a number of cysts, with thin transparent walls, and for the most part full of a clear fluid; some few, however, contained a thick pultaceous material. On section, here and there, between the cysts, were some slight traces of renal structure.

In another instance of *cystic degeneration* of the kidney (234) the cause of the disease was occlusion of the ureter. This was occluded by what appeared to be inflammatory thickening of its walls. It was found to be impossible to pass the finest probe through the point of stricture. The pelvis and ureter above this point were enormously dilated, and formed a large cyst, which contained thin purulent fluid. The kidney itself was dilated into a collection of sacs, formed chiefly at the expense of the cones.

A somewhat analogous case (254) was also observed. In this instance, however, there was no obstruction in the ureter. This tube was greatly dilated, and in its course was found to be enlarged into four cysts; two of about the size of walnuts, and two of common nuts. These cysts communicated with each other by circuitous channels.

In three other cases the kidneys were *cystic*; the cyst being full of cheesy material, constituting the ordinary *scrofulous disease* of this organ.

Two cases of *cancer* of the kidney came under notice. In one of these (96) the kidney was enormously enlarged, weighing 30 oz.; it was somewhat irregular on the surface. On section the structure of the kidney was found to have entirely disappeared, and the cut surface showed only at the lower part a confused semi-gelatinous pinkish-white mass, marked all over by fibrous bands radiating from the pelvis to the circumference. On scraping this an abundant juice was obtained, which under the microscope was seen to contain great numbers of cancer-cells, mixed with epithelium; but no trace of a uriniferous tube could be discovered. At the upper part of the section were three or four nodules of encephaloid cancer, circumscribed, and presenting a contrast to the rest of the section. The pelvis when laid open was found to be completely filled by a fungated mass, which had moulded itself to the pelvis, completely filling it, and prolonging itself down the ureter.

A case was examined where one of the kidneys was converted into an *abscess*, surrounded by a dense fibrous envelope (200). On opening the cavity of the abdomen, the peritoneum was found to be adherent a few firm bands to a mass lying in the position of the left kidney. On cutting into it, it was found to consist entirely of fibrous tissue, and containing in its centre a small abscess, into which a probe could be introduced from a sinus which existed in the loin. Scarcely any trace of real kidney-structure could be made out in any part of the fibrous mass. There was no disease of the vertebræ, and the psoas muscle lay behind the mass, natural, but the muscular structure rather pale.

THE INTESTINES.—The number of cases where those organs were found to be diseased are comparatively few, and in those where there was some morbid change, they presented no feature out of the common.

One or two cases where death occurred after the operation for strangulated hernia require mention. In one case (110), where death occurred on the sixth day, there was found to be an ulcer of the mesentery, about the size of a shilling, just at the point where it joined the portion of gut which was strangulated. The ulceration was surrounded by ecchymosis: it did not completely perforate the mesentery, and had evidently been caused by the pressure of the constricting band.

Another case (301) is of very great interest, as showing how, even after the operation is performed, the strangulation may not be overcome. The patient was admitted with a scrotal hernia, and symptoms of strangulation. It was cut down upon, the sac opened, the stricture divided, and the gut reduced. The symptoms of strangulation, however, continued, and the man died. At the post-mortem examination, the



upper half of the small intestines was found to be full of air and fæces, the lower half to be empty. At the point of junction of the two portions the gut was reduplicated, or twisted upon itself; and the two serous surfaces, at the point of contact, were adherent. The knuckle of intestine thus twisted was the portion which had been strangulated; and it was evident, that in its passage down into the scrotum it had become somehow twisted upon itself, and that this had been overlooked at the operation.

Another case (194) also shows another cause of a fatal result after strangulated hernia. The patient was admitted with a hernia and symptoms of strangulation. The ordinary operation was performed, and the sac opened; the gut was intensely injected, covered with lymph, and the sac contained bloody fluid. The stricture was extremely tight. She went on well after the operation, except that she complained of griping pain in the belly. At the end of a month the wound was quite healed, and she was up and about the ward. But she was still kept in the house on account of the most obstinate constipation, which nothing would overcome. This at last amounted to almost complete obstruction; she became emaciated, was unable to take any food; and ten weeks after the operation she died somewhat suddenly, after suffering from intense pain in the belly. At the post-mortem examination it was found that, at about the junction of the jejunum and the ileum, the gut for about a foot was of a dark slate-colour, and was adherent to the left iliac fossa; above this point the bowel was dilated and full of fæces; its coats were much thickened; below, it was contracted and empty. At the place of adhesion the coats were much thickened by fibrous deposit; which materially constricted the calibre of the canal, so that water flowed through in only a very small stream. The mucous surface at this point was much ulcerated.

One other case of obstruction occurred (360), where a small knuckle of intestine was constricted by a fibrous band, which encircled the bowel, and was adherent to the abdominal wall.

Only one other case of any morbid condition of the intestines requires mention. This was a man (300), who was admitted into the Hospital for stricture, and who suddenly, without any apparent cause, became collapsed, and died. After death the whole of the intestines, from about a foot below the stomach, were full of blood. An inch or two below the highest point at which the blood was found was a pouch in the intestine, about the size of a walnut, formed by the protrusion of all the coats of the gut; it was lined internally by mucous membrane, and communicated with the bowel by an opening sufficiently large to admit a finger. It was supposed that the hæmorrhage came from some vessel in this sac, though the orifice could not be discovered.

THE BLADDER.—In this section there are only two cases which appear to deserve any especial remark, and these are two cases of *villous growth* from the mucous membrane. One case (157) is especially interesting, as the original disease for which he was admitted was cancer of



the prostate. After death it was found that the prostate was converted into a mass of encephaloid cancer the size of a cricket-ball. Upon the mucous surface of the base of the bladder were several little masses of villous cancer. The other case (209) presented a most remarkable example of this disease. It appeared as several loose flocculent masses attached to the mucous membrane by somewhat constricted necks ; and when placed in water, spread out, forming little fringes, resembling very fine sea-weed. Upon microscopic examination the disease appeared to be made up of congeries of vessels grouped together, and containing in their meshes a number of little cysts resembling nævoid tissue more than anything else.

THOMAS P. PICK.

## REPORT OF THE MEDICAL CASES ADMITTED DURING THE YEAR 1868.

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DURING the year 1868, 1754 patients were admitted into the medical wards of St. George's Hospital, 1874 being under treatment in the year. Of these, 240 died, 114 remaining in the Hospital at the beginning of the following year. The average number in Hospital daily was 130; the mean residence, twenty-eight days; the rate of mortality, 13·3 per cent—14·7 per cent for men, 12·3 per cent for women. Of the fatal cases, 42 were brought in dead, or died within twenty-four hours of admission into Hospital. A larger number of patients were admitted during this year than in 1867, and the mean residence was longer; the per-centage of deaths was slightly less.

The social condition of the patients is generally good. 480 were domestic servants; 49 only had no recognised means of living; 163 were labourers of the poorer class; the rest were artisans and tradespeople. The exceptional warmth and dryness of the year 1868 led, as might have been expected, to some variations in the types and prevalence of some diseases, in comparison with previous years. The temperature of the first quarter of the year was considerably above the average; the rainfall during the last two months was less than usual. The heat of the second quarter was also above the average by 3·1°. During the third quarter, the heat was on some days (July 22d, August 5th, September 7th) excessive, and a higher mean temperature was observed than in any similar time for ninety-eight years. The rainfall was less than the average, and the weather was extremely fine; a change, however, occurred in October, and the rest of the year was cold and rainy. For a more detailed account of the weather of the year, reference may be made to Dr. Peacock's paper on the forms of disease observed during the year, in the *Lancet* of January 16th.

Seven cases of sunstroke were admitted, with the usual symptoms; one of these was fatal; the others were recovered by cold effusion, purging, and stimulants. The fatal case is recorded; the condition of the brain was very peculiar, and unlike the appearance found in any other disease. Another case, which may have depended on the heat of the weather, is one recorded as death from a flybite: it is possible that the patient was inoculated with putrid matter, as the man was a butcher, and was bitten on an extremely hot day, the 5th of August.

The number of cases of acute rheumatism admitted during the months of August and September were much in excess of the average. This accords with the experience of Dr. Peacock with respect to St. Thomas's Hospital and the returns of the Registrar-General.

The year was remarkable also for an epidemic of scarlet fever very rife in the neighbourhood of the Hospital. 73 cases of this disease were under treatment, of which 9 were fatal; in 8 cases the fever attacked the patients after admission into the Hospital. In almost all the cases it was impossible to get any facts bearing upon the incubation of the scarlatina poison. The following case has some interest in reference to this point: A young nurse, who had the care of three children, was admitted with symptoms of scarlet fever in November. One of the children had been taken ill with scarlet fever at the end of June. The nurse was immediately sent away with the other two children into the country. The house was washed and re-papered. The nurse came back to the house on the 23d of October; she was attacked with sore-throat on the 8th of November.

A young child, who was admitted with stomatitis into a ward where there were patients suffering from the fever, was sent out well on the 12th of March; she was re-admitted with sore-throat on the 14th, and the rash of scarlet fever appeared on the 16th.

Two women who were admitted with the fever said that they had been nursing children with the fever, one five weeks before admission, the other four weeks.

The rash was observed to follow the sore-throat in periods varying from one to four days. The second and third days were the most frequent dates.

In two cases a diphtheritic membrane formed on the fauces; one of these cases proved fatal. In nine of the cases the kidneys were affected; the patients remained in Hospital from four to fifty-one days.

The sequelæ observed in this fever were, a relapse in one case, rheumatism, erysipelas, sores of the cheek, of the fingers; abscess of the gluteus, eczema, nephritis.

It is a remarkable fact, that choreic patients are relieved from their jactitations if they are attacked with scarlatina; two or three instances of this result have come under notice; and the affinity for both these diseases to rheumatism also seems to point to some connection between the two. Lately there has been a choreic patient in the Hospital attacked with typhoid fever; but the jactitations were unaltered during the fever, though the child subsequently made a complete recovery.

During this epidemic, cases of sore-throat were frequently observed not followed by rash, the patients having been associated with others suffering from scarlet fever.

The cases of enteric fever were more numerous during this year than the previous year. One case occurred in the Hospital; three of the cases were fatal; one suffered from two relapses. The cases of typhus were comparatively few, and call for no special remark. The number of cases of measles during this year was the same as during the last.

Three cases of diphtheria were admitted, one of which proved fatal.



Very good results were obtained from throwing Condyl's fluid with the spray apparatus on to the membrane.

The following case of enteric fever, accompanied with erythema, in which a relapse occurred, with a repetition of both eruptions, is worthy of note :

Sarah B., æt. 33, was admitted with fever on the 8th of January. She was then covered with a red rash, most marked about the arms and legs. She had no sore-throat, and the rash had come out on the day of admission. She was taken ill first on the 31st of December with rigors, which had continued for four days. Her temperature on admission was  $101.4^{\circ}$ . A few enteric spots were discovered on the 8th Jan., and she had all the symptoms of enteric fever. The fever ran a regular course to the 15th, after which she improved until the 20th, when she suffered a relapse, and fresh spots, with increase of fever, were observed. She became convalescent on the 28th, and continued to do well until the 5th of February, when she had a second relapse, and was covered with a brilliant red eruption, closely resembling the rash of scarlet fever; large rose-coloured spots were at the same time observed on the abdomen. The rash remained five days, after which time the patient became convalescent.

The following details of a case of scarlet fever with a quick relapse may also be given :

John W., æt. 4, admitted with scarlet fever, and with the usual form of rash, which had been seen for two days; became convalescent, but on the 22d of February had a relapse; and on the 24th the child was very feverish, and was covered with red rash of scarlet fever. He went out well on the 14th of March.

Closely approximating in effects to enteric fever, not only in clinical symptoms, but, in fatal cases, in the intestinal lesion, the following instance of cesspool-poisoning may be next recorded. The convalescence from the poison was followed by a short attack of rigors, apparently caused by ague, and stopped by quinine. The stools in this case were very remarkable, and were apparently identical with those found in enteric fever.

*Cesspool-poisoning.*—A man, æt. 24, had been emptying a cesspool at 4 A.M. on the 16th. He had previously had but little breakfast. He said that he began to feel queer at 8 o'clock, and felt sick; at 4 P.M. he began to suffer from purging and vomiting; he did not sleep, but continued to vomit during the following night. On the 18th the purging continued, but the sickness had ceased. He was admitted on the 19th; he was then feverish, suffering from pain in the belly with tympanitis. He was purged frequently, and the stools were thin and yellow, exactly resembling the stools of enteric fever. No spots seen. His pulse was 100, and his temperature in the morning was  $99.7^{\circ}$ . In the evening his temperature was  $99.9^{\circ}$ ; his pulse 100; his respiration 28. He was treated with ammonia salines, grey powder, and Dover's powder. He had not the look of fever, and his tongue was furred, but the edges red, smooth, and moist. The bowels were much purged for seven days.

after admission, after which time he became convalescent, and improved up to the 8th of June, when he was seized with a severe fit of rigors, during which his temperature was much elevated, and was found to be  $105^{\circ}$ . These rigors recurred on the 9th and the 11th. During this period the diarrhoea returned with some severity; but he finally became convalescent, and went out well on the 24th of June.

*Rheumatism.*—In the report of last year a table was given of the cases of acute rheumatism admitted during the year, showing various points of interest with reference to this disease. In a very courteous notice in the *Medical Review*, it was objected, that the table was of little use without a detail of the treatment. In the notes preceding the table the method of treatment adopted in the Hospital was described; the same treatment has been adopted during the present year, and consists in the administration of large doses of alkaline carbonates and salts until the urine is made alkaline. The urine is maintained in an alkaline condition until the joints are free from inflammation, and tonics are then freely given. The number of acute and sub-acute cases was very largely in excess of the usual number, and admissions were especially numerous during the months of August and September.

During the first quarter of the year 11 cases of acute rheumatism came into the Hospital; during the second quarter, 19; during the third quarter, 35 cases, of which 28 were admitted during the months of August and September. The proportion of cases complicated with pericarditis was high—19 per cent, as compared with 12 per cent in the years 1865 and 1866. During the last quarter of the year 20 cases were admitted.

217 cases of rheumatism were admitted, as contrasted with 128 cases last year. Notwithstanding this difference in the number of cases, the per-centage of heart-complication and the per-centage of cases of pericarditis are identical for the two years.

Brain-diseases were not found to be more numerous, or in more aggravated form, than usual.

The number of acute diseases of the lungs was increased, and their severity was greater than during previous years.

The cases of sunstroke, of acute and subacute rheumatism, of lung-diseases, both in numbers and degree, show variations in comparison with other years, which are remarkable, and may be attributed to the exceptional weather of the past year.

No special characteristics have been detected in the other forms of disease to distinguish them from those of previous years.

It may be mentioned that the peroxide of hydrogen has had a fair trial in cases of diabetes, and appears to be an utterly useless drug with respect to this disease.

A few cases of ague have been also under treatment with picric acid. This drug produced very peculiar effects on the patients, but had no influence on the disease.

A few remarkable cases are appended; no special comment is required.



*Sunstroke; Fatty Heart.*—Robert O., æt. 60, was admitted in a moribund condition. He was pale, his pulse was small and rapid, his pupils very small, his eyes sensitive to touch, and not injected. He was quite unconscious, and died soon after admission. The history was very defective; but it appeared that he was at work in the sun during a very hot day, and that he was suddenly seized with a fainting-fit, dropping down and becoming insensible. The body was examined nineteen hours after death. It was much decomposed. The brain was intensely congested, of a pinkish hue throughout; the puncta were greatly increased in number, and around the larger ones was a distinct halo of discoloration, due to the soaking of the blood through. The ventricles contained a quantity of deeply-tinged bloody fluid. The substance was of firm consistence, and the central parts were not broken down. The lungs were extremely congested, especially at the lower part, where they presented appearances resembling pulmonary apoplexy, except that it was not in circumscribed patches, but uniformly diffused through the whole. The heart was quite uncontracted and empty, and the structure was exceedingly fatty and rotten, and the valves blood-stained. The aorta was very atheromatous; the liver was natural; the spleen was soft and full of blood; the kidneys were congested, and the tubes full. The blood was universally fluid.

*Sunstroke; Recovery.*—A butcher-boy, æt. 12, who had been crossing the Park, was picked up by the police, and brought into the Hospital in the following condition: His skin was hot—temp.  $103.8^{\circ}$ ; his pulse was small and thready, 125; he was half sensible, but very sleepy. The pupils were small. He complained of much pain in the head, and begged to be left alone. The conjunctivæ were injected. It was a very hot day on which he was admitted, and he was wearing a small Scotch cap. Cold effusion was used, and purging with aloes. He suffered a good deal from pain in the head, and was for the first night restless; but he soon recovered, and left the Hospital.

A man who had been at work at 6 A.M. came across the Park on the 3d August, and was suddenly seized with pain in the head, and fell down between 9 and 10 A.M. He was brought in, complaining of pain in the head. Skin warm; pulse full—84. Cold douche was applied, and decoction of aloes was ordered; and he left the house in the evening well.

A housemaid, æt. 29, three weeks before admission in August (about the 3d of August), after exposure to the sun, was taken ill with shivering, and was delirious. She had suffered from pain in the head, and the eyes were suffused. She was treated with wine and iron, and went out well in two weeks.

*Blood-poisoning after a bite by a fly.*—William S., æt. 37, a butcher, was admitted with extreme swelling about the face and neck. He had been driving across Barnes Common on the 5th of August, the weather being extremely hot at the time, and he was stung by some insect on the left cheek below the eye. He took little notice of it at the time; but in a day or two inflammation set in, and the face became much



swelled. On admission his left cheek was hideously swollen, the eye closed; the glands of the jaw were enormously inflamed and enlarged. The tongue was not involved. He was perfectly sensible, and there was no delirium. There was much pain in swallowing, and even in talking; there was no salivation at first. The inflammation rapidly extended to the neck. He was treated with wine and iron. The breath was extremely fetid, and he complained of much pain in the parts affected. In the evening of the 10th he was much worse; the swelling was much increased. He turned black about the upper part of the thorax, the saliva pouring profusely from his mouth; and he died at 8 P.M., complaining of much pain in the chest. The body was examined after twenty hours. The examination was made by Dr. Whipham. The left side of the head and face was enormously swollen and livid. Under the left eye the skin was gangrenous in two places, each about the size of a sixpenny-piece. The body was otherwise natural, except that the superficial veins on the neck and trunk were well marked. No pleural adhesions were found. The upper lobes of both lungs were perfectly natural; but in the lower lobes, about the middle and posterior parts, were several small patches of pulmonary apoplexy. These varied in size from that of a walnut to a pea. The left ventricle of the heart was partially contracted; the right side was open. The blood was fluid. The spleen was very diffuent. The kidneys were congested; their capsules adherent and splitting. The tongue was large and flabby. The mucous membrane of the pharynx and larynx was congested. The left parotid gland was greatly enlarged, gorged with dark blood, and infiltrated with serous fluid. This fluid ran out in considerable quantities on cutting into the gland. No enlargement of the lymphatic glands was discovered.

*Thickening of bones of skull. Chronic meningitis.*—Henry H., æt. 56, a cabinet-maker, and accustomed to drink a good deal, had been subject for ten years to violent outbursts of temper. He had been married thirty-three years, during which time his wife had never known him to have any serious illness. Whenever annoyed, he used to be very violent, and would knock his wife about. His brother had committed suicide. The day before admission he was very irritable, and complained of headache; the next morning he was very ill, and said his head was very bad. As he got worse, he determined to come up to the Hospital, and walked up from Clapham. When seen he complained of sore-throat, and there was œdema of the fauces and uvula. He was immediately sent to bed, and walked upstairs. In the evening he became rather suddenly comatose, with all the symptoms of anæmia. On the following day he was still comatose; the heart's action was rapid and heaving, and the sounds much increased; the pulse was feeble; the right hand and arm rigid; the left flaccid; the urine high-coloured, s.g. 1023, albuminous, and contained some granular coarse opaque casts. He never rallied, and died at 3 P.M.

After death the uvula, epiglottis, and chord, especially on the right side; the heart was uncontracted. The liver was fatty; the spleen soft

and diffluent; the kidneys coarse and the tubes full; the surface granular. The weight of the two kidneys was twelve ounces. There was a large amount of ecchymosis under the scalp. The calvarium was enormously thickened, very porous, and presenting a worm-eaten appearance. In the internal surface the grooves for the vessels were very deep and well marked. The dura mater was natural. All over the surface of the brain, especially over the surface of the left hemisphere, was a uniform and diffused layer of solidified lymph, which could be easily peeled off from the surface of the brain. The substance of the brain was pink, of putty-like consistence, and the central part softened. The velum interpositum was much thickened, and presented a layer of the same solidified lymph.

*Pericarditis. Hæmato-pericardium.*—William R., æt. 26, was attacked for the first time on the 27th of Jan. with an acute and sthenic attack of rheumatism, with pain in the knees, feet, and hands. On the 1st of Feb. he was seized with pain in the chest, for which sinapisms were applied. On admission, on the 6th of Feb., his hands were very much swelled; the heart-sounds were very distinct, with a large area of dull percussion, and a small running pulse. A strong rheumatic odour was perceptible. He was a large, corpulent, and muscular man, feverish, and with that anxious look so characteristic of pericarditis. No albumen was detected in the urine. He was ordered a blister to the chest, with calomel and opium every four hours, and a draught with one drachm of bicarbonate of potash every four hours. In the evening of the 9th he became suddenly delirious, shouting for the police, and was very restless and sleepless. On the 10th friction was heard very distinctly, of a very rough character, over the surface of the heart, and a blowing murmur at the apex. The urine was alkaline, the pulse rapid and full. Towards evening he again became delirious; he threw about the bed-clothes, though previously the hands had been useless from pain. The heart's action was very turbulent and rapid. On the 11th he was seized with two epileptic fits at 4 A.M., from which he never rallied.

The lungs were found to be much congested and gorged with blood, especially at the lower part. There were four ounces of bloody fluid in the pericardium, with one or two small clots. The surface of the heart was covered with a layer of shaggy lymph, which could be peeled off easily, and principally covered the left ventricle; and beneath this there was another layer of more organised lymph, with one or two old patches. The lymph on the right side was very vascular, and there were several points of extravasation of blood in it. The left ventricle was contracted; the right dilated and empty. The valves were blood-stained. The liver was slightly fatty. The spleen was rather large, firm, and was mottled and congested. The kidneys were coarse and congested. The vessels on the surface of the brain were full of black blood; and the brain cedematous, of the consistence of putty.

*Suppurating hydatid cyst.*—Mark K., æt. 25, was admitted Jan. 4, under Dr. Wadham. He was a platelayer, and had been ill eight



months with symptoms of inflammation of the liver; and he had suffered from pain in the hepatic region with jaundice, and decubitus on the right side. He had not suffered from vomiting. Since that time he had had frequent rigors, followed by sweats. On admission he was very ill, of a dusky almost olive-green colour, with jaundiced eyes. He suffered from dyspnoea and orthopnoea, the breathing being diaphragmatic; and he had much tenderness in the right subaxillary region, with bulging of the ribs. The form of the liver was irregular and rounded; dull percussion extended from the level of the right nipple downwards; and the size of the liver was much increased. It was not nodular. The urine was of the colour of porter. The pulse was sharp and rapid, and seemed to indicate blood-poisoning from suppuration. The diagnosis of abscess of the liver was made. He was ordered six leeches, and ten minims of antimonial wine every four hours. He improved during the next fortnight, his breathing and cough becoming much easier, and the urine lighter in colour. On the 17th he was well enough to get up. He had no rigors, but his pulse continued very sharp and rapid—134. On the 21st he complained of soreness of the scrotum and penis, and scratched the parts with his nails. On the following day these organs were infiltrated with pus, and in a very nasty condition. Bronchitic râles were heard over the right lung, and the sputa were plentiful. From this time he lost ground, the jaundice becoming more intense. On the 23d he became delirious; and he died on the 25th.

At the examination of the body the following condition was found. The body was extremely yellow and emaciated; the scrotum and penis were in a sloughing condition, and infiltrated with pus. The left leg was œdematous. The left lung was œdematous; the right was bound down by adhesions, the surface covered over by a thick layer of shaggy bile-stained lymph. The bronchi were full of bile-stained pus; the lung-tissue was rotten. There were two or three patches of lymph of recent date on the anterior surface of the heart. Both ventricles were dilated, and contained decolorised clots, which were bile-stained. The auriculo-ventricular opening of the right side was dilated. One or two small masses of fibrin were found in the muscoli pectinati. The left lobe of the liver was much enlarged; the whole organ was congested, and of a deep-green colour from the presence of bile. The right lobe contained a large hydatid cyst, which was adherent to the under-surface of the diaphragm, and in a state of suppuration, being full of extremely offensive pus. The spleen was diffuent. The kidneys were enlarged and congested; the tubes full and bile-stained; the Malpighian bodies prominent.

*Abscess of liver, bursting into the peritoneal cavity.*—Henry P., æt. 34, was admitted on the 29th of April, with the following history. He was an engine-driver, and had been ill five weeks with what he described as dreadful pain at the pit of the stomach. He had not suffered from vomiting, and the bowels were reported regular. On admission he was suffering from extreme pain in the lower part of the epigastric region; he was a large corpulent man; his tongue was red at the edges, small, dry and brown on the surface; his pulse was not quick. He had



not suffered from rigors; but the pain was so excessive, as to lead to the conclusion that there was abscess of the liver. He was ordered hydrocyanic acid and brandy, and he improved sufficiently to get up and be about the ward on the 4th. But on the 5th, at 5 A.M., he was seized with acute pain below the epigastrium and over the abdomen, with rapid pulse and symptoms of peritonitis. He sank rapidly, and died on the 7th of May. After death the intestines were found glued together and smeared over with recent lymph. Between the liver and the diaphragm, in the posterior peritoneal space, was a large collection of pus: this communicated with a large abscess in the liver itself by an ulcerated opening large enough to admit the finger. The abscess in the liver was situated at the posterior part of the right lobe, and was as large as a cocoa-nut; it was full of thick creamy pus. Besides this there were two or three smaller abscesses in the liver. The spleen and kidneys were natural.

*Suicide by hanging.*—A man, æt. 28, was admitted in the following condition, after an attempt to commit suicide by hanging. He had been in a very desponding state for six weeks. On the day of admission, at 10 A.M., he left his wife to go into the washhouse. He was gone, it was said, only two minutes, and was found hanging from the rafter, and was cut down. He was bled before admission. When brought into the Hospital he was perfectly unconscious; his pulse was small and rapid, 140; respirations abdominal and gasping, 52 per minute; the pupils were fully dilated; the skin cold and clammy. He was extremely restless, rolling and throwing his arms about, and restraint was required to keep him in bed; occasionally he was subject to attacks of spasmodic dyspnoea and excessive opisthotonos, the back being arched gradually. At 12.20 a blister was applied to his neck, and a turpentine injection administered; at 1.30 his pulse was 228; at 4 P.M. the fits of opisthotonos and the irritability ceased to a great extent; and at 5 P.M. his pulse was quieter, 108. He now began to open his eyes, but did not seem conscious. He was ordered an emetic (pulv. ipecac. ʒj., ant. pot. tart. gr. ij.); but this had no effect. On the following day he smiled when spoken to, but never spoke nor made any attempt to speak; he suffered from dysphagia and accumulation of mucus in the trachea and lungs. The pupils were not so dilated, he had a very sallow dusky look, his pulse was small; the urine was found to contain lithates and a trace of albumen. He fell asleep during the morning, and during this condition the pupils were found closely contracted. He passed a very restless night; but on the morning of the third day he spoke, and could put out his tongue. His breathing was very laboured, and there was so much dysphagia, that nutritive injections were administered. Noisy rattles were heard all over the chest, and his breathing became very laboured. From this time he became unconscious, and died at 1.45 P.M.

At the autopsy, which was made forty-eight hours after death, a very slight abrasion of the cuticle was found under the angle of the jaw on the right side. The lungs were congested, oedematous, and destitute of air; there was some emphysema at the right apex. The bronchial

tubes were full of thick tenacious muco-purulent fluid. The left ventricle of the heart was very closely contracted; the right dilated, and contained a decolorised clot, with some fluid blood. The liver was fatty and congested. The spleen very small, and its capsule wrinkled. The kidneys coarse and congested, the tubes full, and the capsule adherent. The brain was very turgid and full of black blood, the sinuses being very full of blood. The whole substance of the organ was of a pinkish hue. The congestion was especially marked about the pons and medulla.

*Table of Cases admitted into the Medical Wards of St. George's Hospital during the Year ending December 31st, 1868.*

Nature of disease.	Total number admitted.	Total number of deaths.	Percentage of deaths.	Complicated with other diseases.	Deaths among complicated cases.	Observations.
Fevers :						
Typhus . . .	9	2	22	1		
Enteric . . .	33	3	9	1	. .	One in house; two relapse.
Smallpox . . .	3					
Scarlatina . . .	73	9	12	1	. .	Eight in the house.
Measles . . .	10					
Simple . . .	14					
Epidemics :						
Diphtheria . . .	3	1	33			
Mumps . . .	1					
Blood-poisonings						
Erysipelas . . .	38	2	5	4	1	
Pyæmia . . .	5	5	100			
Intermittents :						
Quotidian . . .	3	. .	. .	1	. .	One case was double quotidian.
Tertian . . .	1					
Rheumatism :						
Acute . . .	85	5	6	52	. .	Four in the house.
Subacute . . .	106	1	1	9	1	
Chronic . . .	16	. .	. .	4		
Synovial . . .	10	. .	. .	1		
Gonorrhæal . . .	8					
Gout . . .	53	1	2	9	1	
Osteo-arthritis . . .	36	. .	. .	4		
Syphilis . . .	17	. .	. .	1		
Cancer, &c. :						
Cerebral . . .	1	1	100			
Thoracic . . .	6	4	66			
Larynx, &c. . .	2	1	50			
Abdominal, &c. . .	28	12	50	2		
Uterus . . .	20	7	33			
Tubercle, &c. :						
Phthisis pulmonum . . .	98	15	15	17	5	
Laryngeal . . .	1	1	100			
Meningitis . . .	3	3	100			



Nature of disease.	Total number admitted.	Total number of deaths.	Percentage of deaths.	Complicated with other diseases.	Deaths among complicated cases.	Observations.
<i>Tubercle, &amp;c.—continued.</i>						
Peritoneal . . .	7	1	14	1		
Tabes . . .	1					
Tuberculosis . . .	9	2	22	1		
Diabetes . . .	8	2	25	2	1	
Hæmorrhages :	5					
Epistaxis . . .	6	. .	. .	1		
Hæmoptysis . . .	8					
Hæmatemesis . . .	8	. .	. .	1		
Purpura . . .	1	1	12	2		
Melæna . . .	1					
Uterine . . .	1					
Hæmaturia . . .	2	. .	. .	1		
Anæmia . . .	17					
Cachexia . . .	9					
Starvation . . .	6					
Dropsy :						
Anasarca . . .	71	24	34	69	24	
Ascites . . .	10	5	50	10	5	
Ovarian . . .	2					
Brain :						
Inflamed . . .	2	1	50	1		
Softening . . .	3	1	33	1	1	
Tumour . . .	5					
Hæmorrhage . . .	6	5	82			
Serous . . .	1	1	100			
Congestion . . .	3					
Cyst of cerebellum . . .	1	1	100			
Aphasia . . .	2	. .	. .	1		
Spinal cord :						
Softening . . .	8	4	50			
Nerves :						
Neuralgia . . .	10					
Sciatica . . .	13					
Lumbago . . .	5					
Hemiplegia . . .	32	1	3	3		
Paraplegia . . .	13	3	23	3	1	
Local palsy . . .	12					
Locomotor ataxy . . .	1					
Alternate palsy . . .	1					
Concussion . . .	1					
Paral. agit. . . .	1					
Dysphasia . . .	2					
Nervous system :						
Epilepsy . . .	9	2	22	2		
Chorea . . .	26	1	4	3	1	
Hysteria . . .	27	. .	. .	2		
Hypochond. . . .	6					
Delirium tremens . . .	27	2	8	5	1	
Peculiar . . .	1					
Sunstroke . . .	7	1	14			

Nature of disease.	Total number admitted.	Total number of deaths.	Percentage of deaths.	Complicated with other diseases.	Deaths among complicated cases.	Observations.
Insanity . . . .	7	1	14			
Organs of sense :						
Otitis . . . .	1					
Heart :						
Pericarditis . . . .	22	5	18	22	5	
Valvular . . . .	67	22	33	48	3	
Hypertrophy . . . .	7	4	57	2	1	
Dilated . . . .	11	9	82	4	3	
Angina . . . .	1	1	100	1	1	
Blood-vessels :						
Thrombosis . . . .	1	1	100	1	1	
Embolism . . . .	3	2	66	3	2	
Aneurysm . . . .	20	4	20	3		
Phlebitis . . . .	9	1	11			
Varicose veins . . . .	2					
Atheroma . . . .	4	1	25	4	1	
Pulmonary . . . .	1					
Phlegmasia dolens . . . .	1					
Hæmorrhoids . . . .	1					
Glands :						
Goitre . . . .	1					
Nostrils and trachea :						
Laryngitis . . . .	4	2	12	2	1	
Œdema glottidis . . . .	1			1		
Croup . . . .	4	4	100	1		
Ulceration . . . .	1			1		In one case tracheotomy was performed.
Lungs :						
Asthma . . . .	2					
Emphysema . . . .	13	5	38	5	3	
Bronchitis . . . .	70	13	19	16	7	
Pneumonia . . . .	86	14	16	21	5	
Pleurisy . . . .	57	4	7	11	3	
Abscess . . . .	3			1		
Empyema . . . .	4	3	75			
Pneumothorax . . . .	2	1	50	1	1	
Tumour . . . .	1	1	100	1	1	
Mouth, &c. :						
Quinsy . . . .	15					
Ulcerated throat . . . .	14					
Large tonsil . . . .	2					
Inflamed fauces . . . .	1					
Stomach :						
Ulcer . . . .	4	1	25			
Dyspepsia . . . .	26	1	4	1	1	
Intestines :						
Inflamed . . . .	5	1	20			
Colic . . . .	3					
Ileus . . . .	5	1	20	1		
Diarrhœa . . . .	11					
Dysentery . . . .	2					
Constipation . . . .	19	1	5			

Nature of disease.	Total number admitted.	Total number of deaths.	Percentage of deaths.	Complicated with other diseases.	Deaths among complicated cases.	Observations.
Liver :						
Inflamed . . .	2	1	50			
Abscess . . .	4	2	50			
Acute atrophy . . .	2	2	100			
Fatty liver . . .	1	1	100	1	1	
Cirrhosis . . .	10	9	90	6	5	
Waxy . . .	2	1	50	2	1	
Tumours . . .	2	1	50			
Jaundice . . .	11	. .	. .	1		
Spleen :						
Hypertrophy . . .	2	2	100			
Waxy . . .	1	1	100			
Peritonitis :						
Acute inflammation . . .	22	3	14	3	1	
Chronic . . .	3	. .	. .	1		
Kidneys :						
Albuminuria . . .	5	1	20			
Nephritis . . .	60	12	20	41	7	
Granular . . .	43	18	42	33	14	
Waxy . . .	8	4	50	5	4	
Malignant . . .	2	1	50			
Bladder :						
Inflamed . . .	2					
Male organs of generation :						
Testicle . . .	1					
Gonorrhœa . . .	1					
Female do. :						
Ovary inflamed . . .	1					
Cyst . . .	7	. .	. .	. .	. .	In three cases paracentesis was performed.
Uterus inflamed . . .	11					
Ulcerated . . .	1					
Tumours . . .	25	1	4	2		
Displaced . . .	4					
Pregnancy . . .	1	. .	. .	1		
Vaginitis . . .	1					
Prolapsus . . .	1					
Waxy growths . . .	1					
Abscess . . .	2					
Menstruation :						
Leucorrhœa . . .	6					
Amenorrhœa . . .	7					
Menorrhagia . . .	25					
Diseases						
Of parturition . . .	12					
Pelvic cellul. . .	3					
Pelvic abscess . . .	4	1	. .	2		
Diseased bone . . .	5	. .	. .	1		
Bursitis . . .	3					
Spine . . .	5					
Synovitis . . .	1					
Joints . . .	7	. .	. .	1		
Muscular atrophy . . .	1					



Nature of disease.	Total number admitted.	Total number of deaths.	Percentage of deaths.	Complicated with other diseases.	Deaths among complicated cases.	Observations.
Skin and Cellular Tissue :						
Exanthematous . . . . .	11	. .	. .	4		
Papular . . . . .	1	. .	. .	1		
Pustular . . . . .	2	. .	. .	1		
Vesicular . . . . .	1					
Parasitical . . . . .	4	. .	. .	1		
Cellulitis . . . . .	2					
Erythem. nodosum . . . . .	5					
Enlarged gland . . . . .	1					
Impetigo . . . . .	1					
Lupus . . . . .	1					
Phlegmasia . . . . .	2	. .	. .	1		
Poisons :						
Gaseous . . . . .	1					
Metallic . . . . .	3					
Narcotic . . . . .	2					
Alcohol . . . . .	4					
Animal . . . . .	4	1	25			
Cesspool . . . . .	2					
Ammonia . . . . .	1					
Copivi . . . . .	1					
Lead-poisoning . . . . .	4	. .	. .	1		
Parasites . . . . .	2	1	50	1	1	
Hanging . . . . .	1	1	100			
Fistula . . . . .	1					
Marasmus . . . . .	1	1	100			

REGINALD E. THOMPSON, M.D.,  
*Medical Registrar.*



## REPORT OF SURGICAL CASES

ADMITTED DURING THE YEAR ENDING DECEMBER 31ST, 1868.

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DURING the period above mentioned the total number of cases admitted was 2056, of which 139 died. The number of deaths, however, include 20 cases which were either brought in dead or died within twenty-four hours of admission; thus reducing the mortality to 119 of those actually treated in the Hospital, or a percentage of 5·78.

The division into two classes, viz. *injuries* and *diseases*, has been adhered to as in former years, as have also the subdivisions; but for the sake of brevity, only such cases as point to any interest either in their symptoms, treatment, or progress, will be taken notice of under their respective heads.

First in the order of injuries come those of *burns* and *scalds*, which only number 21 and 25 cases respectively, compared with 41 and 27 of last year; neither is the mortality less happy, for out of the 46 cases, only six proved fatal. Two cases, one burn and one scald, were attacked with tetanus, and both proved fatal.

Joseph G., æt. 13, while standing before the fire with an apron on, set his clothes alight. On admission the skin of the upper part of both thighs, extending round to the back, was completely destroyed. He was much exhausted; but with the aid of stimulants and sedatives he progressed favourably till seven days after admission, when he complained of some difficulty in swallowing, and thirst. He was quite unable to open his mouth the next morning, his head was thrown backwards and to the left side, and the muscles were almost continually rigid. The burn was beginning to assume a healthy appearance. He was ordered ext. conii gr. v.; cacao butyri ℥i. pro suppos. ter die, as anything administered by the mouth brought on spasms. The spasms became gradually more and more frequent, till he died of exhaustion the same evening.

Eliz. M., æt. 16, a servant, subject to fits, was attacked with one while carrying a saucepan of boiling soup, which consequently got upset over her, scalding her right arm. Two days after the accident she was admitted, with the skin over the back of the right forearm and right side



of the chest to a small extent in a state of slough. The sloughs separated, and she progressed favourably till six days after admission, when she was attacked with spasms of rigidity about the muscles of the neck and stiffness about the jaws, though she could open her mouth enough to partly protrude her tongue, which was brown and dry. She was ordered half-drachm doses of turpentine, but without any good effect; and died early the next morning.

A boy, æt. 14, was severely burnt about the left forearm and hand. The tendons about the wrist sloughed, and the hand had to be amputated (see No. 4 in List of Operations) on the upper extremity. The boy made a good recovery.

The only other case in this class that was complicated was one in which a woman, almost recovered from an extensive scald, was attacked with erysipelas. She, however, got perfectly well. In four cases the mischief was so extensive, that the patients died very shortly from the shock. The rest recovered, being treated with the carron oil or simple cerate dressings.

**INJURIES OF THE HEAD.**—In this class 132 cases were admitted, 17 of which terminated fatally. Considering, first, the cases of *simple scalp-wounds*, we have only two which deserve a passing notice, the bulk being received in street-rows, in which either one or both of the parties concerned were more or less under the influence of liquor. 16 out of the 47 were attacked with erysipelas either before or after admission, but recovered with the help of free purgation and the use of iron.

John G., æt. 50, an undertaker, subject to epileptic fits and a very free drinker, was admitted with a large triangular flap of scalp torn up from the top of his head, caused by striking his head against the kerb. He was attacked with delirium tremens on the third day, epileptic fits followed the same evening, and he rapidly sank.

William T., æt. 33, a labourer, was admitted with a small wound on the forehead, and the skin around somewhat inflamed. Two days after admission he appeared perfectly well, but was not able completely to close his right upper eyelid. The day following the risus sardonicus was well marked, and there were occasional spasms about the muscles of the face and neck. He was treated with atropium and morphia injected subcutaneously, but without relief. The spasms became almost continuous, and he died comatose on the fifth day after admission.

Nineteen cases of *scalp-wounds*, in which some portion of *bone was exposed*, came under treatment; three proving fatal, one of the fatal cases also being submitted to operation. The first of the cases that terminated fatally occurred in an old man æt. 68; the wound was very extensive, and the scalp much contused. He died five days after admission of sloughing of the scalp and consequent exhaustion.

Charles B., æt. 47, a labourer, slipped up, and struck his head against a piece of timber. When admitted, a large triangular portion of scalp was torn up, exposing a portion of bone the size of half-a-crown. The patient went on well for about twelve days, and the wound was in great part healed; he was then noticed to be drowsy and pale. Two days later

rigors set in, with other symptoms of pyæmia. These symptoms continued; so, four days after the first symptoms of secondary mischief, the outer table of the skull was perforated with a trephine and a circular portion of bone removed, when the diploë was found infiltrated with pus. No rigors occurred after the trephining, but general convulsions set in the next morning, with paralysis of the muscles of the left side of the face, and he rapidly sank.

The third fatal case occurred in a man, æt. 26, who was admitted with pyæmia sixteen days after a wound on the forehead. He died, with secondary abscesses in his knee-joints, eight days after admission.

*Concussion* of the brain furnishes us with 38 examples; one only proving fatal, and that where arachnitis set in; he was also suffering from fracture of the left patella. The other cases all did well, though in one case a boy was insensible for ten days, and many others almost as long. In many of the instances, the patients, after being drowsy for a few hours, perfectly recovered, and were able to leave the Hospital in the course of a day or two.

Only two cases of *simple fracture of the skull* occurred; both died at once, the skull being completely smashed up: the accident in both cases was a fall from a high scaffold.

*Compound fracture of the skull* add ten to our list of injuries to the head, and six to the number of deaths. In five cases which proved fatal the injury to the skull was very extensive. Two of the patients, both of whom were struck by railway engines, were in so profound a collapse (suffering also from other injuries) on admission, that they died at once. One case was submitted to trephining in order to elevate the depressed bone; but the dura mater was found lacerated; and in two others the bone was elevated, there being also injury to the membranes: all three died within forty-eight hours of the accident.

In an old woman, æt. 64, and in a boy, æt. 7, the fractures and depressions were very slight; they were situated over the frontal region, and appeared only to implicate the outer table. There were no symptoms of cerebral injury on admission, and their recovery was uninterrupted.

Thomas P., æt. 7, was kicked by a pony on the right side of the forehead. On admission, there was a wound about two inches long on the right side of the frontal bone, where the outer table was comminuted, and the inner table depressed for a space the size of a half-crown. He was perfectly sensible, and there were no symptoms. Some loose pieces of bone were removed, and the rest elevated. Three days after, symptoms set in, and brain-matter was noticed to ooze out. Convulsions and coma came on, and he died seven days after the accident.

Henry N., æt. 9, was thrown off a horse on to the right side of his head, and picked up insensible. On admission, there was a wound about an inch and a half long on the right side of the head, situated over the upper and posterior part of the parietal bone, leading down to a fracture, with slight depression of one fragment. The child was unconscious, and only evinced sensibility when put to pain. Pulse good, 96. As there were no symptoms of compression, the bone was not in-



terfered with. The boy gradually became sensible; and though dull and heavy for about three weeks, he recovered, and was discharged at the end of six weeks, with the wound almost healed.

Eight cases were admitted with *fracture of the base of the skull*; in all there was bleeding from the ear; and in five there was well-marked paralysis of the face. Two only proved fatal, from inflammation of the membranes; but they call for no particular notice.

One case of *laceration of the brain*, in a man *æt.* 40, who was thrown out of a cart, and died three days after his admission into the Hospital; and seven cases of simple *contusions* of the scalp, in the bulk of instances the result of intoxication, all of which recovered,—conclude our list of injuries to the head.

INJURIES OF THE FACE comprise in all 37 cases; 27 of these were of *the face* proper, and 10 of *the eyeball*. By far the greater number of these consisted of simple contusions. Nine were wounds, none of them serious; two fractures of the lower jaw; and one fracture of the zygomatic process, the result of direct violence. Of the 10 injuries to the eyeball, two resulted in removal of the globe, and one in extraction of the lens; in three there was some opacity of the cornea when the patients were discharged, but this was gradually diminishing.

INJURIES OF THE BACK furnish us with 61 examples. Seven cases of *fracture of the spine* occurred, one being also complicated with fracture of both thighs, and all proved fatal. In three of the cases, both the upper and lower extremities were paralysed as well as the muscles of the chest-walls, so that the breathing was purely diaphragmatic; in no case did the patient live beyond seventy-six hours after the accident. In two cases, where the fracture was in the lower dorsal region, the patients lived each six days; in one case both thighs being fractured, and the accident in the other occurring in a woman *æt.* 65. In the two remaining cases, the fracture was situated in the upper lumbar region, and the patients lingered on for thirty-one and seventy-nine days respectively.

Forty-five cases occurred of *contusions of the back*, none of a serious nature. One patient had old-standing lupus of the face; and in another, after the patient had been in bed some days, he complained of pain in chest, and a large aneurysm of the aorta was detected, so he was transferred to the medical wards.

Four cases of *wounds of the back* are recorded; three being inflicted wilfully with knives, and the fourth accidentally, from the child falling on a piece of crockery. They were all superficial, and healed in the course of a few days.

The remaining cases in this class consist of four of *concussion of the spinal cord*. In two, the men had fallen from a height of about twenty feet on to their backs; one was the result of a railway accident, and one the result of a blow. In only one of the first was the mischief at all serious, and here the accident had occurred some three months be-



fore admission, and when admitted, the patient had recovered enough from total loss of power of the legs to just manage to walk about with sticks. He gradually improved by being galvanised; and when discharged, at the end of two months, he could walk fairly well without help.

INJURIES OF THE NECK bring to notice 11 cases only, of which seven were *suicidal cut-throats*, one a slight accidental *wound*, and the rest *sprains* and *contusions*. No deaths occurred in this division. In only three out of the seven cut-throats were the air-passages wounded, and in none to any extent. In the four other cases the wounds were quite superficial, but in two delirium tremens set in. The cases of sprains were trivial, and call for no remarks.

INJURIES OF THE CHEST comprise 48 cases, two only of which proved fatal. One, an old man, æt. 71, who was admitted with fractured ribs, was attacked with bronchitis two days after admission, and died two days later.

The other, Charles H., æt. 47, a labourer, fell off a cab, and the horse fell on to him. On admission, there was fracture of the fifth and sixth ribs of the left side, near their angles. He was considerably collapsed, and complained of great pain in his left side. A few hours after admission he spat up about a pint of blood. The next day he complained of intense pain in the left side of chest, having somewhat recovered from the collapse; his pulse 108; tongue dry and brown. There was abundant brownish expectoration. The dyspnoea increased, although plenty of air seemed to enter that lung. His pulse rose to 132, and loud coarse crepitation could be heard all over that side of the chest. He died early the following morning. After death, there was found a hydatid cyst of the lung, which had been ruptured.

Two cases occurred in which the lung was wounded, and there was some emphysema on admission; but this subsided, and the patients made a good recovery. Of the other cases of fractured ribs, seven were followed by bronchitis, but under appropriate treatment all recovered.

Twelve cases are entered as *contusions* of the chest-walls, but none present features of any interest, and may therefore be passed by unobserved.

In two cases there was a *wound of the parietes* of the chest, but in neither was the wound deep enough to injure its contents. Both were the result of spike-wounds, and healed in the course of a few days.

The sternum was fractured in three instances, the result of falls from scaffolds; but in all the cases the patients' recovery was uninterrupted.

INJURIES OF THE ABDOMEN conclude our list of injuries of the trunk of the body. Twenty-five examples occurred, four of which terminated fatally. *Contusions* furnish us with eight examples; in one, the patient, J. G., æt. 12, was walking along with a truck of timber, when one of the pieces rolled off and struck him in the abdomen. On admission, he was somewhat collapsed and pale, and complained of great pain in his

abdomen. Three days after, the abdomen was distended and exquisitely tender; pulse 128; tongue furred. He was ordered calomel and opium, and leeches were applied to the abdomen, under which treatment the symptoms of peritonitis gradually passed off, and the boy made a good recovery. The others were uncomplicated; and the contusions, which implicated simply the abdominal walls, after a few days' rest disappeared. In five cases the *scrotum* was the seat of injury, of which the nature was in most cases that of falling across some bar or railing; three cases were admitted in which contusions occurred; and two where superficial wounds were inflicted, none of which proved to be at all serious.

The *penis* in two cases only was lacerated; in one of which the wound was self-inflicted, and the other caused by foreign violence.

Two cases of *wound of the abdomen* are recorded, but both were very slight, and implicated only a portion of the abdominal walls.

*Bruising*, with more or less laceration of viscera, occurred in five cases; in four the liver was the seat of injury, and the bladder in one. One of the former cases was also complicated with a compound fracture of the thigh, with extensive laceration of the soft parts, and the patient died on the eighth day after admission. The other three recovered, although they left no doubt of the nature of the injury; for besides the ordinary symptoms of collapse, &c., they were each followed by more or less jaundice.

The case in which the bladder was ruptured deserves a passing notice. D. G., æt. 40, while drunk two evenings before admission, fell on to his abdomen, and ever since had noticed pain in the lower part; it was not known that anything that projected from the ground struck him. Early on the morning of his admission, not being able to pass any urine, and having passed none since the accident, he applied to a medical man for relief, who passed a catheter, but only drew off a little blood. About midday he walked up to the Hospital, and complained that he could not pass his urine; so a catheter was passed into the bladder, and about 2 oz. of bloody urine drawn off. About 2 P.M. a catheter was again passed, and about 8 oz. of bloody urine were drawn off. He complained of nothing but a slight pain in the abdomen. When seen the next morning he complained of no pain, but had not passed any urine. About noon he was attacked with vomiting, became collapsed, and died at once. At the post-mortem examination, a rent about three inches long was found in the bladder near its fundus.

Two patients were admitted with *fracture of the pelvis*, both of which recovered. In the first case, the fracture was through the acetabulum, and occurred by the woman, æt. 50, falling on to the right hip, and apparently jamming the femur against the ilium. In the other, a chip only off the ilium occurred, the patient also having a ruptured liver from falling off a scaffold about forty feet high. One case of rupture of the urethra, in which there were also other extensive injuries, and which died shortly after admission, closes our list of injuries to the abdomen.

INJURIES OF THE UPPER EXTREMITY, of which the total number

admitted was 77, have, for the convenience of description, been divided into *contusions*, *wounds*, *fractures*, *dislocations*, and *sprains*. Considering first *contusions*, we had eight admitted into the Hospital; the greater number, as of also the other injuries of the upper extremity, being capable of treatment as out-patients. None of this number present any features of interest, and were only under treatment a few days before they were able to leave.

*Wounds* comprise in all 26 cases; 10 being of the arm, 3 of the forearm, and 13 of the hand. Of those of the arm, which were mostly caused by falls while cleaning windows, one only gave rise to any serious hæmorrhage; but after the vessel had been secured, the bleeding ceased, and the patient was soon able to be discharged from the Hospital. In one case a wound was inflicted on the front of the forearm by the patient himself while attempting to kill a sheep. The knife slipped, and partly divided the radial artery, which was bleeding freely when the patient was admitted. The vessel was secured on either side of the wounded part, and further hæmorrhage stopped; so that when the patient was discharged at the end of ten days the wound was almost healed. The hand, or part of it, was the seat of the wound in 13 instances, three only of which call for any notice, the rest making good recoveries. Thomas A., æt. 25, a carman, while at work got a piece of iron run through his right hand. On admission there was a wound about half-an-inch long on the back and front of the hand through which the iron spike had passed, having gone between the third and fourth metacarpal bones without injuring them. The edges of the wounds were somewhat jagged. They were dressed with carbolic acid, after Lister's plan, and everything went on perfectly well till the sixth day after admission, when about 4 A.M. he complained of pain and stiffness about his jaw. At 11 A.M. he was unable to open his mouth at all; his head was thrown back, and the muscles of his neck, belly, and limbs were continuously rigid, without any period of relaxation. He complained of great pain in his back; pulse 100; very weak. He was twice injected with  $\frac{1}{4}$  grain of morphia and  $\frac{1}{25}$  grain of atropine, but without the slightest relief. The rigidity increased, and he died at 10:30 P.M. of the same day.

Henry T., æt. 14, one month before admission wounded the end of his left thumb with a spade. Fourteen days before admission he complained of stiffness about his jaws, and was somewhat convulsed; and he had continued in the same state, with more or less rigidity of the limbs about six times a-day ever since. On admission, the wound was quite healed; but there was well-marked risus sardonicus, with partial inability to open his mouth, and attacks of rigidity of the limbs every few hours, and slight opisthotonos. He was ordered half-drachm doses of turpentine at first every three hours, and as the symptoms passed off, less frequently. Under this treatment he gradually recovered, and was discharged at the end of five weeks quite well.

John B., æt. 21, a shopman, ten days before admission, jammed his right little finger between the shaft of a cart and the wall. Five days later he noticed a little difficulty in swallowing, which gradually got



worse; for the thirty-six hours just previous to admission spasms of rigidity set in, at times as often as every half-hour. On admission there was an abscess discharging healthy pus, and communicating with the first and second phalangeal joints. The mouth could not be opened for more than a quarter of an inch, and the muscles of jaw, abdomen, and back were rigid. There was slight opisthotonos, and the risus sardonicus was well marked. Distinct spasms occurred about every half-hour. He was ordered half-drachm doses of turpentine every four hours; but as he did not improve, the finger was removed the next day. He was treated with the subcutaneous injection of morphia and occasional injections of turpentine, and from this time he began to very gradually recover. It was, however, about two months before tetanic symptoms had quite passed off, the amputation healing slowly. Chloroform was given for the removal of the finger; and the patient seemed free from spasms for about an hour after he recovered consciousness.

*Fractures* number in all 35; 25 of which were *simple*, and 10 *compound*. The simple fractures comprise eight of the clavicle, eight of the humerus (one was complicated with other serious injuries, and died shortly after admission), eight of the forearm, and one of the scapula, the result of direct violence. Many of this number sustained other injuries (none except the one referred to above of a serious nature), which prevented their being treated as out-patients, as is usually the case with fractures of the upper extremities. Four of the cases of *compound fracture* were of the long bones of the arm, and will be found detailed in a separate table; the other six were of the fingers, and necessitated the removal of one or more; all, however, recovered, with the exception of one man, æt. 58, who had the greater portion of the hand removed; sloughing ensued, and he died of pyæmia.

Four *dislocations*—one of the acromial end of the clavicle, one of the elbow backwards, and two of the wrist—together with four sprains, close the list of this class of injuries.

The injuries which we have now to consider are those of the LOWER EXTREMITY, which furnish us with 340 examples, and which, for the sake of convenience, will be taken in the same order as those of the upper extremity.

Eighty-two cases of *contusions*, two of which proved fatal, occurred. Both the fatal cases occurred in men of drunken habits, who were admitted with delirium tremens, and rapidly sank two days later. In one other case the man was a maniac; and a boy, æt. 6, was attacked while in the Hospital with measles, and was transferred to the medical wards.

*Wounds* of the lower limbs furnish us with 45 examples; 12 being of the thigh, 20 of the leg, and 13 of the foot. Out of this number, only two proved fatal, and those of pyæmia; in both there were lacerated and contused wounds of the thigh, with subsequent sloughing of the skin, and pyæmia. Four cases of wounds of the leg were complicated, one of which died; two were attacked with inflamed absorbents, and another with hæmorrhage, of which the following is a short sketch:

John C., æt. 27, a shepherd, ran a pair of sheep-shears into his right calf ten weeks before admission. There was considerable bleeding at the time, and the posterior tibial artery is reported to have been tied. The wound did not heal, and seven days before admission the leg began to be very painful and to swell. On admission, the whole leg below the knee was very œdematous and swollen, and there was a wound at the lower part of the calf discharging thick pus. Twelve days after admission, a clot of blood was pressed out with the discharge, and arterial hæmorrhage set in. The wound was enlarged, and a cavity the size of a large fist laid open full of clotted blood, and the bleeding found to come from an opening in the posterior tibial artery as large as the point of a probe. The vessel was tied on either side of the orifice, and no farther bleeding occurred. The patient's recovery was retarded by the burrowing of matter; but he was eventually discharged at the end of three months with the wound almost healed.

The fourth case was that of a boy, æt. 5, who was run over by a cab, and admitted with a contused lacerated wound, about six inches long, on the front of the left leg. Sloughing ensued; and on the sixth day symptoms of tetanus supervened, which rapidly increased, and terminated fatally about thirty-eight hours after their first appearance.

Thirteen cases are recorded of wounds of the foot, none of which terminated fatally, and of which only the following deserves notice:

Henry S., æt. 48, a labourer, got his left foot caught in a mowing-machine, and was admitted with a clean cut across the dorsal aspect of the left foot, opening the astragalo-scaphoid joint, and cutting off a small portion of the scaphoid bone. Chopart's amputation was performed, and the wound dressed after Lister's plan, with carbolic acid; but at the end of nine days, as there was an abundant purulent discharge, all the dressings were removed, and the union found very slight in amount. The wound ultimately healed, and a very good stump resulted, though the patient's recovery was retarded by an attack of erysipelas.

*Fractures* of the various bones of the lower extremity occurred in 148 instances, 16 proving fatal. Of these, 38 were of the shaft of the *femur*, and 2 of the neck of the same bone; 10 of the *tibia*; 24 of the *fibula*; 13 of the *patella*; 35 of the *leg*; 4 of the *foot*; and 22 *compound fractures*. The last in this list will be considered in a separate table, with similar injuries of the upper extremity. A few of the others demand a passing notice. In six cases in which the femur was the seat of fracture, there was some complication. A boy, æt. 13, had a load of chalk fall on him, which completely buried him. On admission, there was an oblique fracture of the middle of the left thigh, and an oblique fracture of the middle of the right tibia. At the end of twenty-seven days the limbs were done up in pasteboard splints; but two days after he was attacked with scarlatina, and transferred to the medical ward, where he made a good recovery.

George P., æt. 53, was admitted with a transverse fracture of the left femur in its lower third. He was attacked with erysipelas, and abscesses formed, which seriously prolonged his stay in the Hospital.

Eva H., æt. 14 months, was admitted with a fracture of the middle of left thigh, with very slight displacement. The limb was flexed, but no splints put on. She was subsequently attacked with measles, and transferred to the medical wards, where she died of pleuro-pneumonia.

Daniel L., æt. 24, an idiot, after falling down the banks of a cutting, a distance of about forty feet, was admitted with a fracture of the upper part of his right femur, a comminuted fracture of his lower jaw, and a fracture of the sternum and several ribs. Inflammation of the lungs set in, and he died four days after his admission.

Stephen F., æt. 54, was admitted with a fractured thigh, and also rupture of the urethra, but died shortly after.

George D., æt. 46, was admitted with fractured thigh, and also fracture of the spine in the upper dorsal region. He died within thirty-six hours of his admission.

Fracture of the neck of the femur occurred in two patients, æt. 84 and 58 respectively. They were discharged at the end of about six weeks, with pasteboard splints on and soft union.

Ten cases of fracture of the tibia were admitted, all of which recovered; one case, a little boy, æt. 7, being attacked with measles while in the Hospital.

One case only, out of the 24 of fracture of the fibula, calls for any notice; the others, all recovering, were discharged at the end of about two weeks, with pasteboard splints on.

George K., æt. 52, fell down some area-steps and hurt his left ankle. On admission, there was a comminuted fracture of the lower third of the left fibula, one sharp fragment of bone almost projecting through the skin. A small incision was made, and the fragment of bone removed, the wound being dressed with carbolic acid, after Lister's method. Diffuse cellulitis supervened, and free incisions were made into the part; but sloughing ensued, and the constitutional symptoms ran high, which (after these had somewhat abated) necessitated removal of the limb. This was done by a circular amputation through the lower third of the thigh; and all progressed favourably till twelve days after the operation, when symptoms of pyæmia set in, and the patient sank rapidly, and died the next day.

Thirteen cases occurred of fracture of the patella, one only of this number proving fatal, and that when there was also fracture of the base of the skull, followed by inflammation of the membranes of the brain; but as this case has been noticed under injuries of the head, nothing farther need be remarked upon it.

The remaining fractures of the lower extremity comprise 35 of the leg, which call for no particular notice, all being treated with side-splints for about three weeks, and then being put up in pasteboard splints and a gummed bandage; and three of the bones of the foot, which in one case, where the astragalus was fractured, resulted in removal of the upper part of that bone; but as this case and one other of fracture of the astragalus have been published in the first volume of the *Lancet* of 1869, it is hardly worth while relating the details. The third case of this nature that happened was one of fracture of the fourth



metatarsal bone ; but with rest the patient was able to be discharged from the Hospital at the end of four weeks.

DISLOCATIONS OF THE LOWER EXTREMITY present to us two examples : one of the hip and one of the ankle. Both were recent, and reduced without difficulty. One case also, in which there was a compound dislocation of the ankle, deserves a passing notice. John N., æt. 42, a coachman, was driving a carriage, when the pole broke, and the horses ran away ; he was thrown off the box, and hurt his left ankle. On admission, there was a wound about two inches long over the inner ankle, through which the tibia projected for about one inch, completely torn from its attachments. There was also a fracture of the fibula about two inches above the malleolus. As the dislocation could not be reduced, the end of bone was sawn off, and the foot placed straight. At the end of two weeks, however, symptoms of pyæmia set in ; and he died five days later.

*Sprains* furnish us with 58 examples, the bulk being of the ankle, and caused by patients while intoxicated slipping off the kerb of the pavement ; none, however, present any features of interest.

Three cases of *rupture of varicose veins*, and one of rupture of some fibres of the sartorius muscle, close our list of injuries.

*Table of Compound Fractures.*

No.	Name, age, No. in Register, surgeon.	Nature of accident.	Limb.	State of fracture.	Treatment and result.	Remarks.
1.	Mary M. Aged 50. (29, L.)	Slipped over a step in the dark.	Right leg.	Small punctured wound, with considerable bruising. Oblique fracture of middle of both bones.	Assalini's box. Pad of lint over wound. Pastebord splints. 111 days.	Lint removed on the 28th day. Wound quite healed. Union very soft.
2.	Cath. F. Aged 70. (65, Hol.)	Fell down stairs on to elbow.	Left elbow.	Contused wound about $\frac{1}{2}$ inch long. Oblique fracture of lower part of humerus into joint.	Inside angular splint; lint over wound. Died, 8 days.	Suppuration set up in joint, and considerable portion of skin sloughed. Patient died of exhaustion.
3.	Thomas C. Aged 15. (136, P.)	Railway truck full of chalk emptied on to him.	Left leg.	Oblique fracture of middle of both bones, with small punctured wound.	Assalini's box. Lint steeped in collodion over wound. Pastebord splints. Recov. 56 days.	Suppuration occurred under lint, which was removed on the 7th day; there was also an extensive lacerated wound over the left knee.
4.	William W. Aged 63. (141, P.)	Wheels of railway trains passed over both legs.	Both legs.	Both legs much lacerated. The right one smashed and ankle-joint opened. Left foot smashed.	Primary amputation of both legs. Died, 48 hours.	Was semi-collapsed on admission. (See List of Operations.)
5.	William H. Aged 8. (162, L.)	Thrown off pony which fell over on to him.	Left leg.	Lacerated wound $1\frac{1}{2}$ in. long. Oblique fracture of both bones just above ankle. Skin tucked in under upper fragment of tibia.	Outsidesplint. Waterdressing. Side splints. Recovered, 37 days.	Attacked with adenitis and erysipelas. Wound nearly healed and union firm when he was taken out.

6.	John G. Aged 10. (265, H.)	Fell off a ladder about 15 feet.	Left thigh.	Oblique fracture of middle of femur. Small contused wound.	Single inclined splint. Lint over wound. Died, 24 days.	There was also a rupture of the liver.
7.	George B. Aged 29. (335, L.)	Was pulling down a wall, and portion fell on to arm.	Right arm.	Contused wound 2½ in. long over external condyle. Fracture between condyles into joint.	Angular splint. Secondary amputation. Died, 15 days.	Erysipelas and pyæmia set in before the amputation; he died the day after.
8.	William C. Aged 55. (431, H.)	Slipped off a raised foot-path.	Left leg.	Fracture of middle of both bones. Wound about 1½ inches long, through which the tibia protruded about 1 inch, but not denuded of its periosteum.	Assalini's box. Lint over wound. Secondary amputation of thigh. Died, 43 days.	Suppuration set in, and hæmorrhage followed on the 24th day, so the thigh was amputated. Died of pyæmia.
9.	William P. Aged 34. (483, P.)	Slipped down with a sack of coals on his back.	Right leg.	Fracture of both bones (middle) and small punctured wound.	Assalini's box. Pad of dry lint over wound. Pastebord splints. Recovered, 73 days.	Suppuration set up at seat of fracture, and bone necrosed. Recovery retarded by an attack of erysipelas of face and neck.
10.	James F. Aged 32. (516, L.)	Knocked down by a train and wheels passed over his leg.	Right leg.	Extensive laceration of lower part of leg, and smashing up of both bones.	Primary amputation of leg. Died, 16 days.	Sloughing and pyæmia set in on 9th day.
11.	James T. Aged 9. (577, H.)	Knocked down by a train, which passed over his leg.	Left leg.	Extensive laceration and smashing up of lower part of bones.	Primary amputation of leg. Recovered, 53 days.	Recovery retarded by an attack of scarlatina.



No.	Name, age, No. in Register, surgeon.	Nature of accident.	Limb.	State of fracture.	Treatment and result.	Remarks.
12.	Robert S. Aged 28. (615, P.)	Train passed over his arm.	Right arm.	Severe bruising and laceration of soft tissues. Smashing up of bone quite high.	Primary amputation at shoulder-joint. Died, 21 days.	The parts were so bruised that, to make even a very small flap, portion of bruised tissues was included. Died of pyæmia.
13.	Charles B. Aged 49. (646, P.)	Run over by a train.	Right thigh and leg.	Limb completely mangled.	Stimulants. Died 3 hours.	Was so collapsed on admission, that interference was improper till reaction set in, which it never did.
14.	John C. Aged 35. (1060, Hol.)	Jumped off scaffold, and twisted leg.	Left leg.	Oblique fracture of both bones. Small punctured wound.	Assalini's box. Carbolic dressing. Side splints. Pasteboard splints. Recovered, 36 days.	The wound healed under the carbolic dressing, without suppuration.
15.	John N. Aged 42. (1138, P.)	Thrown off carriage, which was running away.	Left leg.	Contused wound 2 inches long, through which the tibia was protruding. The tibia not fractured, but ligaments torn through. Fibula comminuted.	Wound enlarged, and about $\frac{1}{2}$ in. of tibia sawn off; portion of fibula also removed. Assalini's box. Died, 18 days.	Symptoms of pyæmia set in on the 14th day.
16.	Charles B. Aged 21. (1212, Hol.)	Thrown off horse, which trod on leg.	Left leg.	Comminuted fracture of both bones, with small wound.	Assalini's box. Carbolic dressing. Pasteboard splints. Recovered, 30 days.	Under-dressing removed for first time on the 29th day, when a small scab was found underneath.

17.	Charles H. Aged 34. (1249, H.)	Slipped off a corn-bin, and leg twisted un- der him.	Left leg.	Oblique fracture of mid- dle of both bones, with small punctured wound.	Assalini's box. Wound covered with oil-silk and collodion. Pasteboard splints. Recov- ered. Stimulants. Died 3 hours.	The oil-silk separated on 9th day, leaving a healthy wound, which healed by granulations.
18.	William D. Aged 46. (1308, P.)	Knocked down and run over by train.	Left patel- la into joint.	Comminuted fracture of patella and extensive laceration of soft parts.		There was also extensive com- pound fracture of skull, pro- foundly collapsed, and never rallied.
19.	Thomas D. Aged 48. (1343, P.)	Fell off steps about 4 feet high.	Left leg.	Contused lacerated wound on inner and middle of leg, through which tibia protruded about 2 inches.	Put in position. Assalini's box. Carbolic dress- ing. Died, 3 days.	Delirium tremens set in, and he died suddenly with a fatty heart.
20.	George H. Aged 20. (1519, H.)	Thrown from cart, which fell over on to his leg.	Right leg.	Contused wound, through which tibia protruded about 1 inch denuded of periosteum.	End of bone sawn off. Assalini's box. Lint over wound. Died, 28 days.	Lint separated on 7th day, leav- ing a healthy wound. Pyæmia set in on 22d day.
21.	Fred. B. Aged 33. (1958, Hol.)	Run over by a train.	Left thigh and left arm.	Both limbs smashed up, and soft parts much lacerated.	Primary ampu- tation at hip- and shoulder- joints. Died same day.	(See Amputation List.)

GENERAL DISEASES furnish us with 104 examples, comprising 34 cases of *erysipelas*; 22 of *diffuse cellulitis*; 6 of *sloughing*; 7 of *tetanus*; 25 of *pyæmia*; 1 of *gout*; 4 of *measles*; 3 of *scarlatina*, and 2 of *rheumatism*. The total number of deaths was 47, pyæmia furnishing 23. I propose passing over these cases in a very summary manner, as they will be found recorded under the different heads of diseases or injuries with which they were complicated; very few being uncomplicated, save in the division "*diffuse cellulitis*."

Of the 34 cases of *erysipelas* that came under notice, 23 were complicated, and will be found elsewhere. 15 of the cases were admitted with the disease, and in 19 instances it broke out while the patients were under treatment in the Hospital.

Nineteen out of the 22 cases of *diffuse cellulitis* that occurred were admitted with the disease, seven of which proved fatal—three of *pyæmia*, one of *hæmorrhage*, and three of *exhaustion*. One man, æt. 28, was admitted with *diffuse cellulitis* and abscess in the neighbourhood of the knee-joint; matter burrowed, and the joint became implicated, necessitating removal of the limb (see List of Operations). In one case, which was followed by *pyæmia* and died, the kidneys were also considerably diseased. Of the three cases that commenced in the Hospital, two resulted in amputation and terminated fatally (see List of Operations), and the other recovered.

Six cases of *sloughing* came under notice: five were admitted, one of which died of *exhaustion*; the other one broke out in the Hospital, and the patient died of *pyæmia*.

Seven cases of *tetanus* occurred, all following injuries, and have been cited elsewhere.

*Pyæmia* occurred in 25 instances, three being admitted with the disease, and one of the three terminating fatally. In the 22 cases that commenced in the house, all terminated fatally; 14 following operations.

One man that was admitted with *hydrocele* was attacked with *gout*, to which he was subject, and was transferred to the medical wards, where he recovered.

Nine other cases were transferred to the medical wards—viz. four of *measles*, three of *scarlatina*, and two of *rheumatism*—having been admitted for some surgical affection. Two of the cases of *measles* died of *pleuro-pneumonia*.

Having passed through with cursory notice the various injuries affecting the human frame, we now pass on to the manifold diseases to which it is liable, considering in the first place those relating to the ORGANS OF MOTION.

*Abscess of bone*, which comes first in our list, furnishes us with five examples, two of which terminated fatally. In all the cases the tibia was the seat of disease, and in one of the fatal cases the spine was also the seat of caries.

A man, æt. 39, was admitted with a sinus on the front and upper part of the left tibia, leading down to soft bone. The history he gave



was, that twenty-six years ago he noticed pain and swelling in this situation; abscess formed and burst, and has continued to discharge pus more or less ever since. The sinus was laid open, and found to lead down to exposed tibia; this being trephined, a large cavity was found in the head of the bone, extending up nearly as high as the knee, which was therefore gouged out. Six days after the operation he was attacked with symptoms of pyæmia; and died five days later.

The other fatal case occurred in a man, æt. 30, who had also disease of the spine with abscess, which burst into the abdomen, causing peritonitis, of which he died on the eighteenth day.

In one other case, in which the head of the tibia was the seat of mischief, the cavity was laid open and gouged out, and the patient was discharged convalescent.

Forty-seven cases of *necrosis* were admitted, 23 of which were submitted to operation. Two cases proved fatal; but in neither of these was any operation performed. One, a boy, æt. 9, was admitted with acute necrosis of the left tibia and extensive abscess; he had also symptoms of pyæmia on admission. In spite of all treatment he gradually became worse, secondary abscesses forming in the right thigh and also in the hip-joint; and he died twenty-four days after his admission.

The other fatal case occurred in a woman, æt. 25, who had been the subject of specific necrosis of the tibia for about four years, and had on previous occasions had several pieces of bone removed. She suddenly became collapsed, and died about four days later of secondary mischief in the abdomen.

One patient, a woman, æt. 30, was admitted with extensive necrosis of the lower end of the femur, implicating also the knee-joint. She was suffering acute pain, and was in a very low and emaciated condition. The limb was removed (see List of Operations on the lower extremity, No. 2), and the patient made a good recovery.

The other cases that were submitted to operation call for no particular notice: in most the tibia was the seat of disease.

*Caries of bone* (not including that of the vertebral column) furnishes us with 21 cases, eight of which were submitted to operation, and three terminated fatally. In four cases of caries, the whole of one or more tarsal bones were excised, of which the following lines are a brief account.

William R., æt. 28, had been suffering from abscess of the foot and diseased bone for about four years. He was put under chloroform, with the view of removing the diseased bone, when the head of the third metatarsal bone was found rough and soft, as was also the scaphoid and cuboid. The whole of the two last bones were removed, together with the head of the metatarsal bone; and the patient progressed favourably for a time after the operation. Diffuse inflammation set in, and extensive burrowing of matter; so it was deemed advisable (the patient being in a very low state) to remove the limb, which was done; the patient gradually sinking, and dying about three weeks after the last operation.

Caroline C., æt. 5, had been suffering for some months from disease

of the bones of the foot. Under chloroform the scaphoid was found to be the seat of disease, and was removed. The other bones appeared healthy. She recovered with a promising foot, and the wound nearly healed.

Sidney McP., æt. 6, had had the os calcis excised in the Hospital about eighteen months before. The wound never healed; and on examination there was found to be extensive disease of the astragalus. The whole of this bone was excised, and the boy has been seen lately with a useful foot.

In Mary Ann K., æt. 14, the cuboid and end of the fifth metatarsal bones were removed, and she left the Hospital with the promise of a useful foot.

In one case, that of Agnes M., the whole of the carpal bones and the end of the radius were found carious. Amputation through the forearm was performed, and the patient made a good recovery. The other cases call for no separate notice. One, a child dying of pneumonia after measles contracted in the Hospital; and the other an old man, of phthisis and old age. The rest that were submitted to operation improved.

Twenty-five cases of *disease of the spine* were admitted, 16 of which were complicated with abscess, two terminating fatally—one of phthisis, and one of amyloid degeneration. One case of *lateral curvature*, which was discharged with an appropriate instrument, and one of rickets, also were admitted.

Five cases are entered as *tumours of bone*. Four of these were of a malignant nature, of which one died. The fifth was a small epulis of the upper jaw, which was removed.

*Periostitis* furnishes us with 23 examples, many of which resulted in necrosis; but as they have been considered under that head, need not be again recorded. One only out of this number proved fatal, and that in a boy, æt. 9, who was reported to have struck his left leg one week before admission. When admitted, there were high constitutional symptoms, with a large abscess over the front of the left tibia. This was laid open; but secondary abscesses formed; and he died about four weeks after the injury.

One man, Henry D., who had had the upper jaw removed the previous year for cancer, came back, the disease having returned; but the mischief had progressed too far to admit of operative interference; and he died of exhaustion, after repeated attacks of hæmorrhage.

*Synovitis* occurred in 63 instances, 28 of which were the result of recent injury. In no instance did the disease terminate fatally, though in 16 cases there was apparently some mischief in the bone giving rise to the synovial inflammation; and the patients were discharged with leather splints, all acute symptoms being alleviated.

*Ulceration of the cartilages* and *abscess in joints* furnish us with 55 examples, of which 10 terminated fatally, 25 being submitted to operation. The various cases that were submitted to operation will be found in the List of Operations, and may therefore be passed by. The sacro-iliac joint was the seat of disease in eight cases, one of which died with amyloid degeneration, after a lengthened stay in the Hospital. In two cases, in which there was abscess in the knee-joint, the patients had also

considerable tubercular mischief in the lungs, and were not in a fit state to admit of operative interference.

Five cases occurred of *diseased ligaments*, all of which were improved; one case, of which the following is a short notice, being also placed under this head for want of a better classification.

Edward K., æt. 9, was admitted, fourteen months after excision of the knee-joint, with considerable flexion and extension, but also a large amount of lateral movement, so that the limb was unable to support the weight of the body. The soft fibrous union was cut out from between the ends of the bones, and the limb treated as if for recent resection. At the end of about three months the boy was discharged, with  $2\frac{1}{2}$  inches shortening (the same as on admission), and the limb in a plaster-of-paris splint. The union was still soft, but firmer than before the operation.

Three cases of *hysterical pain* in a joint, with two of old *rheumatic mischief*, and six of *ankylosis*, also came under notice, one only of which merits recording.

Edward G., æt. 44, a groom, gave the following account: Ten years before he was in the Hospital, with pain in various joints after gonorrhœa, but got quite well. For some years past he had been subject to flying pains about his joints and swelling. Eight months before admission his neck began to get stiff and painful, as did also his left wrist. Other joints became subsequently similarly affected. On admission the vertebræ, all except the lower three dorsal (where there appeared to be slight movement), were ankylosed; the ribs were also all ankylosed, so that the breathing was purely diaphragmatic. There was considerable thickening about the left wrist and ankylosis, and the right knee was similarly affected, though to a less extent. He remained in the Hospital about six weeks, but left it in much the same state.

*Disease of the hip* furnishes us with 34 examples: in 14 abscess had already formed. In 10 cases the disease was in a very early stage, and with rest and good diet the patients were in a fair way of recovery; in the others the patients were kept in the recumbent position, and discharged as soon as all acute symptoms had passed off, and the limb placed in a good position, with leather splints on. One man, æt. 27, was admitted with a typical history of a *loose cartilage* and considerable effusion into the knee-joint. No loose cartilage could ever be found, and the patient was discharged apparently quite well.

Thirty-one cases of *inflamed bursæ* were admitted, which in 13 cases suppurated, two being followed by diffuse inflammation; and in both instances the patients died. One woman, while in the Hospital with an inflamed bursa, was confined, and died of puerperal convulsions. The remaining cases did well, though in three there was considerable burrowing of matter, necessitating counter-opening.

The only remaining case in this class that deserves notice is that of Martha P., æt. 23, who had been repeatedly under treatment in the Hospital for a *cyst of the neck*. It had been frequently tapped, had been laid open and dressed with stimulating applications, and about three years before treated with the silver-wire seton; but with little or no benefit. She was admitted in the early part of the year, when the



cyst was tapped, and about two ounces of clear serous fluid drawn off. About half an ounce of equal parts of tincture of iodine and water was then injected, which set up some inflammation; and when this had subsided, she was discharged for a time. She was again admitted in November, with an opening in the tumour discharging thin purulent fluid. The fluid would accumulate at times and give her great pain, and then discharge itself again. The greater part was dissected out now; but it penetrated so deep into the neck, that after exposing the carotid vessels it was deemed inexpedient to proceed farther; so the cavity was dressed with lint, in the hopes that it would granulate and heal from the bottom. This operation seemed certainly to diminish the size of the cavity; but when the patient left the Hospital with the wound nearly healed, there was still a sinus running up nearly as high as the angle of the jaw, discharging thin pus.

DISEASES OF THE ORGANS OF CIRCULATION comprise in all 91 cases, in one case only the heart itself being the part affected. This patient, a man, æt. 48, and of drunken habits, was admitted with a compound fracture of the left leg; delirium tremens set in, and he died suddenly. The heart was found to be extensively fatty.

*Aneurysm* of one of the large vessels occurred in seven instances, two of them necessitating operative interference, and one dying of plithisis. A short notice of some may prove interesting.

G. R., æt. 43, a ploughman, stated that about twelve months before he strained himself while at work with the plough, and ever since noticed a small swelling beating in the inner side of the right thigh, but it caused him no inconvenience. Fourteen days ago it began rapidly to increase in size. On admission there was a pulsating diffused tumour on the middle and inner side of right thigh, extending over a surface about six inches long by three inches broad; it appeared considerably consolidated; and though the pulsation could be quite stopped by pressure on the femoral, the tumour decreased but little in size. A loud aneurysmal bruit could be heard. There was distinct pulsation in the posterior tibial artery. The patient's health was very good. Pressure both digital and also by means of a tourniquet was made in the groin at intervals for about ten days, with but little effect upon the aneurysm, but causing ulceration of the skin in the groin; so it was left off. After this the swelling increased; so the femoral artery was tied with a silk ligature in the lower part of Scarpa's triangle: the artery was found to be pushed considerably outwards. The pulsation in the tumour ceased, and the patient progressed favourably, the ligature coming away on the 13th day. Consolidation went on, and the tumour gradually decreased, though for a long time there was a soft spot in the centre, which at one period seemed likely to suppurate. This, however, did not take place; and when the patient was discharged, at the end of fifteen weeks, there was but slight thickening left.

Henry C., æt. 60, a labourer, was admitted with the following history. Eleven weeks ago he noticed a small beating tumour in the left ham, for which he was unable to account; for three weeks it had been

getting much larger, with throbbing shooting pains, especially at night. On admission, there was a large diffuse swelling in the left popliteal space the size of two large fists; it was soft, and at parts appeared fluid; it pulsated, but did not seem to expand or alter in shape after the pulsation had been stopped by pressure on the femoral artery. There was feeble pulsation in the posterior tibial artery, and a distinct bruit could be heard; but the patient was of a sallow aspect, and suffered a great deal of pain, the foot and leg being œdematous and cold. Pressure was kept on the artery at intervals, and the pulsation diminished. The tumour also, which appeared on admission to surround the lower part of the femur, dropped back, so that the bone could be more distinctly traced. It was partly solid and partly fluid, but varied from time to time both in size and consistency. This went on for about two months and a half, when the skin of the middle toe began to slough; the sloughing extended, implicating the other toes, and then the outer side of the foot and the heel; and as the patient's health began to suffer, the limb was amputated through the lower third of the thigh. After the amputation the patient made a slow but good recovery. On examining the parts after removal, a large aneurysm of the popliteal artery was found, the sac being filled partly with fibrin, but principally with clotted blood.

Simeon D., æt. 45, a labourer, while lifting a heavy log of wood five weeks before admission, felt pain in his left knee. Twenty-one days later he noticed a small pulsating tumour in the left popliteal space. When admitted, there was a small aneurysm, the size of a walnut, in the left ham, with distinct bruit. Pressure on the femoral completely stopped all pulsation, and the sac could be almost emptied. The knee was flexed at an acute angle for four days, so as to completely stop all pulsation, which, when the limb was unflexed, had quite ceased, and never returned. The patient was discharged at the end of sixteen days with all pulsation gone, only a slight lump left.

A man, æt. 37, was admitted, pale and in a very weak state after hæmatemesis, with a popliteal aneurysm the size of a large orange. His health was much improved, and the aneurysm somewhat consolidated by pressure and flexion, when he became discontented, and refused to remain in the Hospital. The femoral artery, I have heard, was afterwards tied in St. Bartholomew's Hospital.

A man, æt. 45, was admitted with a pulsating tumour (which he had noticed about three weeks), the size of a walnut, at the root of the left side of the neck, just behind the sternal end of the clavicle, with a slight bruit, but no difference in the pulsation of the radial artery. The pulsation could be stopped by pressure between the clavicle and the tumour; but the patient was also suffering from phthisis, to which attention was principally directed. He ultimately died of phthisis; and at the post-mortem examination, an aneurysm of the transversalis colli artery was found almost obliterated, from its having pressed on the artery above the seat of lesion.

Twelve cases of *varicose veins* were submitted to the usual operation performed in the Hospital—of compression by means of two harelip pins



and division of the vein between these two points. One case, that of a man, æt. 27, was followed by phlebitis and pyæmia, terminating fatally on the fifteenth day.

In two cases of *nævus* of the face, the diseased parts were dissected out without difficulty; though in one the cure was not complete, as the *nævus* again appeared, and was treated with nitric acid.

The only other case that calls for notice is that of a woman, æt. 53, always healthy, and the mother of a large family. Three months before admission, she noticed the glands in left axilla and left side of neck beginning to enlarge. These rapidly increased in size, and the glands in other regions became enlarged. When admitted, she was in a very weak and low state, with general enlargement of the glands in the several regions. They rapidly increased in size; and she rapidly sank of exhaustion.

DISEASES OF THE ORGANS OF RESPIRATION furnish us with 24 examples; 10 of this number proved fatal. Eight out of the 10 fatal cases were *tubercular* in origin, mostly complicated with fistula in ano.

One old man died of bronchitis, having been admitted with fractured ribs; and one man, æt. 47, was admitted with fractured ribs, and rupture of a hydatid cyst of the lung; but as this case is recorded under Injuries to the Chest, we may pass on to

DISEASES OF THE NERVOUS SYSTEM, which comprise 36 cases, eight of which terminated fatally; three of *meningitis*, four of *delirium tremens*, and one of *mania*. In all the fatal cases the patients were admitted with injuries; and where any interest existed, it will be found noticed under that division.

One case of *spina bifida* was admitted, and submitted to operation, of which the following is a short account. Mary B., æt. 15 months, was admitted with a fluctuating tumour, the size of a small child's head, over the upper lumbar region; it was somewhat tense, but not tender, and the skin over it was natural. It was congenital, but had increased very much in size during the last month. As the child was in very good health, it was tapped with a fine trocar, and about two drachms of clear straw-coloured fluid drawn off. Four drops of equal parts of tincture of iodine and water were then injected, and the wound closed up. The swelling decreased somewhat, and became softer for a few days, the child continuing perfectly well; but then again began to increase. At the end of a week, it was tapped again, about half an ounce of similar fluid being drawn off, and injected as before. No disturbance followed the tapping; but the child was taken out, as the mother was obliged to go away.

One case of hysterical pain in the knee was attacked while in the Hospital with scarlatina, and was transferred to the medical wards. She recovered, and was discharged improved.

DISEASES OF THE SKIN and its appendages furnish us with 237 cases; 105 of these being *ulcers*, mostly dependent on a varicose condition of the veins. Considering, in the first place, the diseases of the skin proper,



we have of *eczema*, 20; *rupia*, 8; *psoriasis*, 3; *lupus*, 7; *lichen*, 1; *scabies*, 4; *erythema*, 4. In only five cases was the disease in an acute form; and the eruption in all of these was *eczema*. Two were complicated—one with an attack of *erysipelas*, and one with *scarlatina*. No deaths occurred, and the patients when discharged were much improved. In the more acute forms, alkalies and alteratives, with the use, where much irritation existed, of a lotion containing hydrocyanic acid, appeared to answer more efficaciously than any other mode of treatment. In the more chronic form, arsenic proved also very beneficial. The sulphur vapour-bath, or sulphur in the form of ointment, relieved the cases of *scabies* in the course of a few days; while the cases of *erythema*, which mostly occurred in girls about the time of the appearance of the *catamenia*, were best treated with the citrate of iron and compound decoction of aloes.

Two cases of *cancerous ulceration* occurred, both of which died; one of *pyæmia*, and one of exhaustion consequent on the profuse discharge and repeated attacks of hæmorrhage.

*Tumours* affecting the skin occurred in 19 cases; 17 of which were submitted to operation. None present any points of interest, and consisted principally of fatty and sebaceous materials.

Two cases are entered as *contracted cicatrix*, though it was only one case admitted twice. It was the result of a burn about nine months previously, and drew the lower lip and chin down on to the chest. A V-shaped incision was made through the skin and cellular tissue, and the flap dissected up, and fastened about two inches nearer the chin. The wound healed kindly, and the child was somewhat improved by the operation when discharged. She has been seen lately (about sixteen months after the operation), and is able to raise her head much better than before.

DISEASES OF THE EYE, EAR, AND NOSE.—As the former of these diseases will be noticed in a separate part of this or another volume, they need hardly occupy our attention here. Only one case, that of a *polypus nasi*, that was removed by Langenbeck's operation, needs recording in this class. Eliz. W., æt. 14, had *scarlatina* ten years before, and ever since had been deaf and dumb. Four years ago she first noticed a gnawing pain in the right side of the face, which had since that time been gradually swelling. For the last three months the right eye had been pushed forwards and outwards. On admission, there was slight fulness of the whole of the right side of the face; the right eyeball was protruded and pushed somewhat outwards, though the sight remained perfect. There was swelling at the inner angle of the right eye, and the right nasal bone was considerably raised, giving great breadth to the bridge of the nose. On looking down the nostril a shining mass could be seen, which, however, did not prevent air escaping from the nostril. Nothing could be seen or felt from the mouth. The child was strong and healthy. Under chloroform the right nasal bone was turned back, and the polypus extracted through the opening so made without difficulty. It was found to have caused absorption of the lachrymal

bone, and thus to have entered the orbit. It was of the gelatinous variety, and attached to the basilar process. The bone was replaced, and the wound closed with silver sutures, and painted over with collodion. The wound almost entirely healed by first intention, and the patient was discharged at the end of a fortnight. She has been seen (about twelve months after the operation) lately, and it would be difficult to say that she had ever had anything the matter.

DISEASES OF THE ORGANS OF DIGESTION comprise 133 cases, 17 of which proved fatal. Fifty-nine operations were performed, 16 being for the cure of *fistula in ano*, and 20 for the reduction of *strangulated hernia*. *Ulceration of the mucous membrane* of the mouth, and abscess, furnish us with four examples, all of which recovered. Three operations were performed for the closure of *cleft palate*, twice in the same patient. This young man, æt. 17, had had congenital cleft completely through both palates, and also through the upper lip. The lip had been closed very successfully when he was quite young. The soft palate was closed during the latter part of last year by one operation; and twice during the present year the hard palate was the seat of operation, which was attended with very great success; for when he was discharged after the second operation, there remained an opening quite at the upper part only just large enough to admit a probe. He was seen about eighteen months after the operation, when there still existed a minute opening, which caused him no inconvenience; and his articulation was much improved, though still somewhat indistinct.

Four *epitheliomata* of the lip were removed. In one case the disease had returned, after an operation about six months previously.

Twenty-two cases of *strangulated hernia* were admitted, in 20 of which it was found necessary to operate. These will be found detailed in the list of Operations on the Abdomen. In two cases of hernia, where symptoms of strangulation existed, the rupture was reduced after the application of ice.

Sixteen cases of *fistula in ano* were submitted to operation, and all recovered. The rest were suffering also from tubercular mischief in the lungs, and were not in a fit state for operation. One man had also extensive disease of the kidneys, and died after being in the Hospital about a week; and in another, who had advanced phthisis, death was accelerated by an attack of erysipelas of the face.

Sixteen cases of *hæmorrhoids* occurred, five of which were cured by the ligature, and two by removal with the knife and the application of the actual cautery.

*Gastrotomy* was performed in one case, of which the following is a short account. Charles M., æt. 45, a healthy man, had suffered from constipation and pain in the belly for about three weeks. He had taken aperients, but without relief. One week before admission faecal vomiting set in, which continued at intervals up to the time of his admission, and since then no action whatever of the bowels had taken place. On admission he had an anxious aspect, and complained of great pain in the abdomen, which was distended, tympanitic, and



acutely tender. He had a rapid pulse, and repeatedly vomited faecal matter. Opium was administered, and injections given by means of the long tube passed per rectum, but without any relief. Matters continued unchanged, and he grew rapidly weaker; so two days later, as it was evident he would soon die if unrelieved, gastrotomy was performed as a last chance, with the possibility of the symptoms being due to constriction from some band or other. The abdomen was opened in the median line, and a band felt in the right inguinal region passing over the intestine. In endeavouring to release the intestine the gut gave way, and a large escape of faeces ensued. An attempt was made to form an artificial anus; but the gut was found so rotten that this was impossible, so the wound was closed with harelip pins and ligatures. The patient died about three hours after. At the post-mortem examination, twenty-two hours after, the intestines were found very vascular and smeared with recent lymph. Some fluid faeces was also found in the abdominal cavity. In the large intestine, about three inches from the ileo-caecal valve, was a perforating ulcer the size of a shilling, the edges of which were thickened and rugged. There were also numerous other ulcerations not completely perforating the gut. The other organs were found healthy.

DISEASES OF THE URINARY ORGANS comprise 82 cases, 7 proving fatal. In 6 cases there was *haematuria*, due to some lesion of the kidney from injury; all, however, recovered. 3 cases of *irritable bladder* and 8 of *cystitis* occurred; 2 of the latter proving fatal from phthisis, from which the patients were also suffering when admitted. 7 cases are entered as *retention of urine*; in 2 it was due to gonorrhoea, and in the other 5 to excessive drinking, the patients also having slight organic strictures. They were relieved by warm bath and large doses of opium, and were discharged in the course of a few days.

*Stone* occurred in 9 instances, all of which were submitted to operation; 1 dying of chronic pyæmia after lithotrity, the orifice of the urethra in this patient being congenitally constricted, and necessitating slitting open before the lithotrite could be introduced. These operations, as well as those others in this class, will be found in the list of Operations on the Urinary Organs, and may therefore be passed by.

Thirty-two cases of *stricture* and *perineal fistulae* came under notice, four necessitating perineal section. One other deserves a passing notice. Thomas M., æt. 61, had suffered from stricture for about fifteen years. Five weeks ago an abscess formed in the perinæum, and was opened three days before admission. On admission, the whole of the scrotum and perinæum was much swollen and inflamed, and a large slough occupied the greater part of the perinæum, by the side of which urine escaped. He was in a very low and weak state. This condition improved; the slough separated, and left a deep hole; but he was very pale, and complained of pain in the lower part of the abdomen. He continued in a very low state till about two weeks and a half after admission, when he became suddenly collapsed. Stimulants were given, and he rallied somewhat; but a few hours later he became again collapsed, and died



at once. On examination, the whole of the intestines, from about a foot below the stomach, were full of black blood, in all about three pints. About two inches below the highest point at which blood was found was a pouch in the gut, about the size of a walnut, and formed by a protrusion of all the coats of the gut. It was lined with mucous membrane, and communicated with the bowel by an opening large enough to admit a finger. It was supposed that the hæmorrhage might have come from some vessel in this sac; but though all the vessels leading to it were carefully injected with water, no opening could be discovered. The rest of the intestine was healthy.

One old man, æt. 66, was admitted with extravasation of urine and sloughing of almost the whole of the scrotum. He died of exhaustion a few days after his admission.

Two cases are entered as recto-urethral fistula. In both cases it was due to some malignant ulceration, and the patients were discharged unrelieved.

Eight cases of enlarged prostate, and three of cancer of the bladder, which last all proved fatal, finishes our list of cases in this class.

DISEASES OF THE MALE ORGANS OF GENERATION furnish us with 87 examples. Only 1 of these, however, proved fatal, and that of tubercular meningitis. In 9 instances the disease was *primary syphilis*, principally sores of the sloughing variety; and in 31 *secondary*, including ulcerations about the throat and integument, eruption, and diseases of the bones, where they could be clearly traced as due to the specific virus. The calomel vapour-baths have been largely used, and with marked benefit; and in those cases where the patients were much out of health, or not fit to be put under mercurial treatment, iodide of potassium seemed to act like a specific. The remaining cases of a venereal origin consist of 3 of *gonorrhœa*, 2 of *warts*, 8 of *buboes*, and 9 of *inflammation of the testis*.

Nine cases of *hydrocele*, and one of *hæmatocoele*, came under notice. They were all tapped, and in five cases injected with either iodine or port-wine, with benefit.

In two cases *epithelial cancers* were removed from the scrotum; and in one of them, where there were masses of enlarged glands in the groin, these were removed also.

One case of *varicocele* was submitted to the operation for the radical cure, and did well; and in three cases the *testis* was removed for tumours connected with it, two being *fibrous*, and one *malignant*. In the last case, the disease returned up the cord, and the patient died in the early part of the present year.

DISEASES OF THE FEMALE ORGANS OF GENERATION.—The first organ that comes under this head is the breast, which was the seat of disease in 21 instances. *Mammary abscess* occurred in six cases, one being complicated with a fistula in ano, which was laid open. In four cases the cure was tedious, owing to the burrowing of matter. *Tumours* of the breast furnish us with 15 cases, 2 of which were *adenoid*, 9 *scirrhus*,

3 *sero-cystic*, and 1 *simple cystic*. All were submitted to operation except one adenoid, which was small, and causing no inconvenience (see list of Operations on the Thorax).

Diseases of a *venereal nature* comprise 5 of *primary* and 29 of *secondary syphilis*, and 3 of *gonorrhœa*, none of which call for any notice.

One woman, æt. 67, was admitted with a small *epithelial growth* of the clitoris, which was removed; and she was discharged cured.

Four cases of *ovarian disease* were admitted, and relieved by tapping; but no case of ovariectomy occurred during the past year. One case of *puerperal peritonitis* proved fatal, and will be found under "Inflamed bursa patellæ," in the list of Diseases of the Organs of Motion, for which she was originally admitted.

The last case in this class was one of extensive sloughing between the vagina and bladder after labour, causing a deficiency of almost the whole anterior wall of the vagina. Emily R., æt. 18, was admitted six weeks after her first confinement, which had been very lingering, and necessitated the use of instruments, with the posterior wall of the bladder adherent to the posterior wall of the vagina, about two inches from its orifice. The uterus could be felt shut in, and very small. The urethra was obliterated; but a catheter was passed down its commencement, and forced into the bladder. The bladder opened directly into the vagina by an opening right across the vagina. A consultation was held, and the deficiency between the vagina and bladder being so extensive, it was thought impossible to bring the edges together; and the only thing to be done was, to unite the anterior edges of the cleft with the posterior wall of the vagina, thus completely occluding the vagina, and converting it and the bladder into a common cavity. This was done six times; and after the last operation, the orifice that remained was barely large enough to admit the point of the finger. An instrument was adapted to catch the urine; and the patient discharged, as it was thought inadvisable to interfere farther, at any rate at present, as the tissues around the opening that remained were so hard and unyielding.

One case of *enlarged thyroïd gland* was admitted, which concludes this portion of the Report.

## TABULAR STATEMENT OF OPERATIONS PERFORMED DURING THE YEAR 1868.

CLASS I. *Operations on the Head, Neck, and Face.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	John K. (463, R.)	58	M.	Compound depressed fracture of skull.	Trephining and elevation of bone.	Died, 2 days.	There was laceration of the dura mater also.
2.	Charles B. (1761, L.)	47		Suppuration in diploë after scalp-wound.	Trephining the outer table of skull.	Died next day.	The wound was very extensive, but did very well till the 12th day, when symptoms of secondary mischief set in; was trephined three days later. Had also a comminuted fracture of right arm. The brain-matter oozed out after the operation. The dura mater was lacerated, and brain-matter oozed out at the operation.
3.	William T. (168, L.)	24	M.	Compound depressed fracture of skull.	Elevation of bone.	Died, 2 days.	The polypus, which was gelatinous, but contained a large amount of fibrous tissue, and very large, was easily extracted.
4.	Thomas P. (1393, L.)	7	M.	Compound depressed fracture of skull.	Elevation of bone.	Died, 8 days.	
5.	Daniel D. (1871, R.)	55	M.	Compound depressed fracture of skull.	Elevation of bone.	Died about one hour later.	
6.	Eliz. W. (1281, R.)	14	F.	Polypus nasi.	Langenbeck's, of bending back the nasal bone.	Recovered, 13 days.	



7.	Henry C. (1856, Hol.)	37	M.	Epithelioma of tongue.	Removal with knife.	Recovered, 7 days.	The disease subsequently returned, and the greater portion of tongue and some infiltrated tissues in the neck were re- moved in July 1869.
8.	Sarah B. (651, H.)	25	F.	Epulis.	Removal with knife.	Recovered, 2 days.	The soft palate was closed in 1867. The anterior portion only was closed at this operation; but the patient was readmit- ted, and the whole almost entirely closed.
9.	Horace D. (457, P.)	16	M.	Cleft palate.	Staphyloraphy.	Recovered, 6 days.	
10.	Fred. T. (1644, Hol.)	24	M.	Cleft of soft and hard palate.	Staphyloraphy.	Recovered, 14 days.	The union of soft palate, which only was operated on, was not complete, but a good bridge was formed.
11.	William L. (540, Pow.)	17	M.	Destruction of eye after injury.	Extirpation of eyeball.	Recovered, 13 days.	Besides the above, there were: one evulsion of polypus of nose, three for cure of harelip, four for cancer of lip, three for necrosed bone, three for removal of tumours, one for entropion, one iridotomy, ten for cataract, eight for strabismus.
12.	Matilda O. (1062, Pow.)	31	M.	Disorganisation of eyeball.	Extirpation of eyeball.	Recovered, 13 days.	
13.	Tydney C. (108, Pow.)	11	M.	Sloughing of eyeball after injury.	Abcission of eyeball.	Recovered, 22 days.	

Besides the above, there were: one evulsion of polypus of nose, three for cure of harelip, four for cancer of lip, three for  
necrosed bone, three for removal of tumours, one for entropion, one iridotomy, ten for cataract, eight for strabismus.

CLASS II.  
*Operations on the Upper Extremity.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	R. Faynxtý. (615, P.)	28	M.	Compound smash of arm.	Amputation at shoulder-joint (primary).	Died, 21 days.	Pyæmia set in on 18th day.
2.	Fred. Best. (1958, Hol.)	33	M.	Compound smash of arm and extensive laceration of tissues.	Amputation at shoulder-joint (primary).	Died, shortly after the operation.	
3.	George Braithwaite. (335, L.)	29	M.	Sloughing after compound fracture into elbow-joint.	Amputation of arm, circular (secondary).	Died next day.	Had symptoms of pyæmia prior to operation.
4.	John Thom. (253, H.)	14	M.	Sloughing after burn.	Amputation of forearm, circular, through skin and flap of muscles (secondary).	Recovered, 20 days.	
5.	W. Miles. (402, H.)	47	M.	Abscess of wrist-joint.	Amputation of forearm (circular through skin, flap of muscles).	Recovered, 100 days.	Had also incipient phthisis.
6.	T. Parry. (732, H.)	67	M.	Abscess of wrist-joint.	Amputation of forearm (circular).	Died, 23 days.	Was in an extremely emaciated condition at time of operation, and gradually sank.

7.	A. Mason. (1936, B.)	45	F.	Caries of carpus and ab- scess of wrist.	Amputation of forearm (semi-lunar flaps).	Recovered, 30 days.	The radius was also exten- sively inflamed, and the patient was readmitted, to have portion gouged away.
8.	Emma T. (193, Hol.)	16	F.	Abscess in elbow-joint.	Excision of elbow.	Recovered, 113 days.	This patient was readmit- ted with phthisis, but the operation was very suc- cessful.
9.	Thomas B. (734, R.)	34	M.	Caries of end of bones and abscess in elbow-joint.	Excision of elbow-joint.	Recovered, 37 days.	A very useful arm was the result.
10.	Thomas C. (1237, R.)	14	M.	Caries of end of bones.	Excision of joint.	Recovered, 105 days.	The subperiosteal resec- tion was performed; but though only part of pe- riosteum was left, new bone formed, which con- siderably impaired the motion of elbow.
11.	Alfred C. (1643, Hol.)	10	M.	Abscess of elbow after wound.			

Besides the above, there were : nine cases in which a portion of the hand was removed, five removals of dead bone, six of tumours, and one reduction of dislocation.



CLASS III.  
*Operations on the Thorax.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	Mary L. (151, B.)	53	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 34 days.	Some enlarged glands in axilla were also removed.
2.	Ann G. (38, Hol.)	51	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 20 days.	Wound washed out with carbolic acid, and dressed after Lister's method.
3.	Ann H. (45 Hol.)	36	F.	Sero-cystic disease of breast.	Amputation of breast.	Recovered, 27 days.	The other breast was removed 2½ years before for similar disease.
4.	Sarah B. (192, L.)	65	F.	Sero-cystic disease of breast.	Amputation of breast.	Recovered, 26 days.	A sero-cystic humour had been removed from breast six years before.
5.	Mary L. (599, R.)	49	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 23 days.	
6.	Susan K. (994, R.)	42	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 42 days.	Some enlarged glands in axilla also removed.

7.	Mary S. (1306, P.)	42	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 39 days.	The disease returned in ax- illary glands, and was removed twice.
8.	Caroline B. (1408, P.)	43	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 34 days.	Wound washed out with carbolic acid.
9.	Grace B. (1521, Hol.)	51	F.	Scirrhus of breast.	Amputation of breast.	Recovered, 20 days.	Wound washed out with carbolic acid, and dress- ed after Lister's plan.
10.	Ann G. (488, H.)	42	F.	Chronic mammary tumour.	Removal of tumour.	Recovered, 22 days.	
11.	Sarah S. (1908, R.)	28	F.	Cystic tumour of breast.	Removal of cyst.	Recovered, 20 days.	

Besides the above operations there were : four for recurrent cancer, one for recurrent sero-cystic disease, and two for the removal of fatty tumours.

CLASS IV.  
*Operations on the Abdomen.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	Hannah M. (95, H.)	63	F.	Femoral hernia of 6 years' standing. Never worn truss. Strangulated, 70 hours.	Sac opened, and contained 1½ oz. of very dark offensive fluid. Mass of omentum semi-gangrenous, and large coil of gut very congested.	Died, 9 hours.	No post-mortem made.
2.	William P. (138, P.)	48	M.	Inguinal hernia of 7 years' standing, reducible till 4 months back. Never worn a truss. Strangulation, uncertain.	Sac opened, and contained ½ oz. of straw-coloured fluid. The greater portion of small intestine, and some of large, with portion of mesentery.	Died, 32 hours.	Was semi-collapsed on admission, from which he never rallied. 20 hours after the operation the gut came down, and as it could not be got back, it was punctured and returned. Died of peritonitis.
3.	William S. (467, P.)	21	M.	Recent inguinal hernia. Strangulated, 6½ hours.	Sac opened. 3 inches of small intestine much bruised and congested.	Recovered, 21 days.	
4.	Henry H. (473, R.)	33	M.	Inguinal hernia of 10 years' standing. Strangulated, 7 hours.	Sac opened. 3 inches of small intestine and omentum somewhat bruised.	Recovered, 36 days.	Recovery retarded by an attack of delirium tremens.
5.	James D. (481, P.)	22	M.	Recent inguinal hernia. Infantile. Strangulated, 4½ hours.	Sac opened, and contained about ¾ oz. of bloody fluid, and 6 inches of gut much congested.	Recovered, 18½ days.	



6.	Ann P. (484, P.)	35	F.	Femoral hernia of 12 months. Never worn truss. Strangulated, 24 hours.	Sac opened. About 3 inches of small intestine very congested.	Recovered, 28 days.	
7.	Edward B. (561, Hol.)	33	M.	Inguinal hernia of 11 months. Truss worn. Strangulated, 11½ hours.	Sac opened. 6 in. of small intestine slightly congested. Mass of omentum much bruised.	Recovered, 25 days.	The mass of omentum was ligatured and cut off. Recovered without a bad symptom.
8.	Charlotte B. (607, P.)	51	F.	Recent femoral hernia. Strangulated, 5 days.	Sac opened. About 1 inch of small intestine very congested.	Died, 6 days.	The wound was closed with silver sutures and colodion, and did remarkably well. Became suddenly collapsed, and died at once. Ulceration of gut was found.
9.	Margaret S. (670, L.)	35	F.	Femoral hernia of 3 years' standing. Never worn truss. Strangulated, 29 hours.	Sac opened, and found adherent. Contained 1 oz. of bloody serum, and small knuckle of intestine very congested.	Died, 66 days.	Recovered from operation without bad symptoms, and was up and about with the truss on. Ever since the operation she had had constipation, with occasional pain in belly. She complained suddenly of great pain in belly, became collapsed, and died at once. On examination the gut was found very constricted and ulcerated at the seat of constriction.
10.	Lydia C. (737, B.)	24	F.	Femoral hernia of 12 months' standing. Truss worn. Strangulated, 3½ hours.	Sac opened, and contained small knuckle of gut slightly congested.	Recovered, 58 days.	Had been operated on for same hernia one year before. Recovery retarded by an attack of erysipelas.

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
11.	William C. (788, R.)	32	M.	Congenital scrotal of 3 years' standing. No truss worn. Strangulated, 5 hours.	Sac opened, and contained small knuckle of small intestine slightly congested, and mass of omentum much bruised.	Recovered 20 days.	Ligature of silk passed through base of mass of omentum, tied, and mass cut off. Recovery uninterrupted.
12.	Fred. B. (801, P.)	57	M.	Congenital inguinal of 4 years' standing, not completely reducible. Truss worn. Strangulated, 3 days.	Sac opened, and contained about 4 inches of gut. 1 inch only was strangulated by the not completely obliterated tunica vaginalis. This was covered with sloughs.	Died, 5 days.	The hernia consisted of two portions, the one strangulated and the other only bruised, and situated between the strangulated portion and the external ring. Died of ulceration of gut and peritonitis.
13.	Ann K. (1221, Hol.)	56	F.	Femoral of 3 years' standing. Truss worn. Strangulated, 2 $\frac{1}{4}$ hours.	Sac opened, and contained about one inch of gut slightly congested.	Recovered, 18 days.	
14.	James G. (1326, L.)	69	M.	Umbilical 2 years, never quite reducible. Had worn support. Strangulated, 12 hours.	Sacs opened. There were 2 sacs, each containing about 4 inches of gut slightly congested and somewhat bruised.	Died, 12 hours.	For details of this and other interesting cases of hernia, see report under head "Hernia."
15.	Godfrey D. (1412, P.)	36	M.	Scrotal 1 week. Never returned. No truss worn. Strangulated, 48 hours.	Sac opened. Large mass of omentum and small knuckle of intestine.	Recovered, 31 days.	Suppuration in sac followed the operation.
16.	John L. (1555, Hol.)	22	M.	Reducible scrotal hernia of 7 years. Truss worn. Strangulated, 11 hours.	Sac opened. Small knuckle of gut very congested, and mass of omentum in same state.	Recovered, 24 days.	

17.	Fred. C. (1557, Hol.)	26	M.	Reducible scrotal of 9 years. Truss worn. Strangulated, 2½ hours.	Sac opened, and contained about 1 foot of small intestine much bruised and congested.	Died, 4 days.	The pad was removed the day after the operation, and patient died, with symptoms of strangulation. A small knuckle was found strangulated at the internal ring.
18.	Marg. McC. (1911, B.)	74	F.	Irreducible inguinal of 6 months. No truss worn. Strangulated, 4 days.	Sac opened, and contained about 2 inches of gut almost gangrenous.	Died, 30 hours.	Was collapsed on admission. At post-m. intestines found smeared with lymph, and gut ulcerated at point of constriction.
19.	Ann P. (2022, R.)	70	F.	Inguinal of 12 years' standing. No truss worn. Strangulated, 15½ hours.	Sac opened, and contained a small knuckle of intestine, strangulated in a mass of omentum, much bruised and adherent.	Recovered, 23 days.	The omentum was ligatured and cut off. Ligature came away on 18th day. Recovery uninterrupted.
20.	John F. (2056, L.)	69	M.	Scrotal hernia of 30 years. Worn truss. Strangulated 26 hours.	Sac opened, and contained 3 inches of gut slightly congested.	Recovered, 21 days.	There were two strictures, which had to be divided before the gut could be returned.
21.	Henry P. (219, Hol.)	58	M.	Hæmorrhoids.	Strangulated, cut off, and actual cautery applied.	Recovered, 12 days.	
22.	John L. (769, Hol.)	36	M.	Hæmorrhoids.	Strangulated, cut off, and actual cautery applied.	Recovered, 9 days.	
23.	Charles M. (539, Hol.)	45	M.	Obstruction of bowel.	Gastrotomy.	Died, 5 hours.	See report "Diseases of Organs of Digestion."

Besides the above operations, there were: six cases of ligature of hæmorrhoids, and sixteen for the cure of fistula in ano.



## CLASS V.

*Operations on the Genito-Urinary Organs.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	Philip L. (282, P.)	46	M.	Impermeable stricture.	Perineal section.	Recovered, 48 days.	
2.	George S. (640, L.)	26	M.	Stricture after injury.	Perineal section.	Recovered, 24 days.	
3.	John P. (1140, P.)	31	M.	Impermeable stricture.	Perineal section.	Recovered, 33 days.	
4.	George C. (1273, P.)	34	M.	Stricture and perineal fistula.	Perineal section.	Recovered, 41 days.	
5.	George S. (290, P.)	10	M.	Calculus.	Lithotomy.	Recovered, 71 days.	Wound quite healed when he left Hospital.
6.	Fred. G. (947, P.)	8	M.	Calculus.	Lithotomy.	Recovered, 13 days.	Wound in great part healed.
7.	Frank W. (1160, L.)	7	M.	Calculus.	Lithotomy.	Recovered, 57 days.	The lateral operation performed, and the incision continued outwards in quarter circle.
8.	George H. (1374, L.)	10	M.	Calculus.	Lithotomy.	Recovered, 38 days.	Same operation as last.
9.	George C. (1462, R.)	57	M.	Calculus in urethra.	Lithotomy.	Recovered, 27 days.	There were two stones impacted in urethra, where they were cut down upon.

10.	William B. (1624, Hol.)	10	M.	Calculus.	Lithotomy.	Recovered, 41 days.	When the bladder was reached, no stone could be found. See another part of Report.
11.	Henry B. (136, R.)	27	M.	Calculus.	Lithotriety.	Recovered, 64 days.	Crushed five times. Has been seen since; all symp- toms passed off.
12.	John A. (1051, Hol.)	46	M.	Calculus.	Lithotriety.	Died, 74 days.	Crushed twice. Pyæmia set in after second crushing, and numerous secondary abscesses formed.
13.	George R. (1432, H. and L.)	54	M.	Calculus.	Lithotriety.	Recovered, 126 days.	Crushed five times. Read- mitted in 1869, and li- thotriety again performed.
14.	Emily R. (496, P.) (1342, Hol.)	19	F.	Extensive opening between bladder and vagina after confinement.	Plastic operation.	Recovered.	This patient was submitted to operation six times. (See "Diseases of Female Organs of Generation.")
15.	John H. (892, Hol.)	51	M.	Tumour of testis.	Removal of testis.	Recovered, 20 days.	
16.	Charles M. (990, L.)	42	M.	Tumour of testis.	Removal of testis.	Recovered, 44 days.	
17.	John L. (1677, H.)	39	M.	Encephaloid disease of testis.	Removal of testis.	Recovered, 28 days.	
18.	William W. (574, R.)	38	M.	Epithelioma of scrotum and glands.	Excision of growth and glands.	Recovered, 20 days.	
19.	Joseph M. (1712, R.)	42	M.	Epithelioma of scrotum.	Excision of growth.	Recovered, 20 days.	

Besides the above, there were : three for the cure of hydrocele, and one for the cure of varicocele.

## CLASS VI.

*Operations on the Lower Extremity.*

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
1.	Fred. B. (1958, Hol.)	33	M.	Compound comminuted fracture of thigh, and extensive laceration of soft parts.	Amputation at hip-joint (primary).	Died shortly after operation.	There was also snatching of left arm, which necessitated amputation at shoulder-joint.
2.	E. C. (121, P.)	30	F.	Necrosis of femur and abscess of knee-joint.	Amputation (double semilunar flaps) of thigh.	Recovered, 26 days.	Very good stump.
3.	Chas. P. (278, P.)	29	M.	Abscess of knee-joint.	Amputation (double semilunar flaps) of thigh.	Recovered, 35 days.	Very good stump.
4.	W. C. (431, H.)	55	M.	Compound fracture.	Amputation (circular) of thigh (secondary).	Died, 16 days.	Died of pyæmia; abscesses found in lungs and liver.
5.	J. T. (762, P.)	39	F.	Ulceration of foot of 18 years' standing, and hypertrophy of skin of leg.	Amputation at knee-joint.	Recovered, 107 days.	Patella left in flap; very good stump.
6.	D. C. (1159, L.)	38	M.	Abscess of knee-joint.	Amputation of thigh (circular).	Recovered, 70 days.	Torsion applied to all the arteries, and a silk ligature on femoral vein. Recovered, with a very good stump, without an unfavourable symptom.



7.	John S. (724, L.)	28	M.	Abscess of knee-joint after diffuse cellulitis of leg.	Amputation of thigh (circum- cular).	Died, 17 days.	Was in an extremely ex- hausted condition at the time of operation, and gradually sank. Subsequent erysipelas and sloughing.
8.	Stephen H. (1414, P.)	7	M.	Softening of end of femur and ulceration of carti- lages.	Amputation of thigh (through condyles), long anterior flap.	Died, 34 days.	
9.	E. L. (1458, Hol.)	3	F.	Abscess around and within knee-joint.	Amputation of thigh (semi- lunar flaps).	Recovered, 38 days.	
10.	G. J. (1650, Hol.)	52	M.	Diffuse cellulitis and sloughing after fractured fibula.	Amputation of thigh (cir- cular), secondary.	Died, 15 days.	When admitted, the fibula was comminuted, and a piece which was almost through the skin was re- moved. Died of pyæmia.
11.	L. N. (1729, R.)	35	F.	Abscess of knee-joint.	Amputation of thigh (semi- lunar flaps of skin and circular through mus- cles).	Recovered, 48 days.	
12.	L. D. (1933, Hol.)	26	F.	Ulceration of cartilages and dislocation of knee.	Amputation of thigh (semi- lunar flaps).	Died, 25 days.	Extensive suppuration. Sank, and scrofulous de- posit found in left kidney.
13.	W. W. (141, P.)	63	M.	Compound fracture of both legs.	Amputation of both legs (semilunar flaps), pri- mary.	Died, 2 days.	Never thoroughly recover- ed from shock of acci- dent. (See "Table of Compound Fractures," No. 4.)
14.	James F. (516, L.)	32	M.	Compound smash of leg and foot.	Amputation of leg (rect- angular flaps—long pos- terior), primary.	Died, 16 days.	Died of pyæmia; second- ary abscesses in lungs.
15.	J. T. (577, H.)	9	M.	Compound fracture of leg.	Amputation of leg (circu- lar), primary.	Recovered, 52 days.	Attacked with scarlatina 12 days after operation.
16.	G. R. (866, Hol.)	26	M.	Diffuse cellulitis after ex- cision of cuboid and sca- phoid.	Amputation of leg (circu- lar).	Died, 21 days.	Died of pyæmia.

No.	Name, No. in Register, and surgeon.	Age.	Sex.	Nature of disease.	Nature of operation.	Result, and at what date.	Remarks.
17.	Henry S. (1227, Hol.)	48	M.	Wound of foot opening tarsal joints.	Chopart's amputation.	Recovered, 60 days.	Lister's carbolic dressings applied. Attack of erysipelas retarded recovery.
18.	John D. (422, H.)	24	M.	Fractured astragalus, and necrosis of upper part.	Removal of necrosed portion.	Recovered, 97 days.	Recovered, with a very useful foot.
19.	John N. (1138, P.)	42	M.	Compound fracture of leg, protrusion of end of tibia.	Removal of end of tibia.	Died, 15 days.	Pyæmia set in two days before death.
20.	John C. (1344, R.)	27	M.	Hæmorrhage after wound of posterior tibial artery.	Ligature of posterior tibial artery.	Recovered, 75 days.	
21.	George R. (1722, R.)	43	M.	Femoral aneurysm.	Ligature of femoral artery.	Recovered, 98 days.	
22.	George H. (1519, H.)	30	M.	Compound fracture and protrusion of tibia.	End of bone sawn off.	Died, 28 days.	Pyæmia set in six days before death.
23.	Isaac B. (206, Hol.)	12	M.	Old disease of knee and dislocation.	Excision of knee.	Recovered, 166 days.	Recovery retarded by an attack of erysipelas, followed by abscess.
24.	Frank B. (1875 of previous year, P.)		M.	Strumous disease of knee.	Excision of knee.	Recovered.	
25.	Mark W. (639, Hol.)	27	M.	Disease of synovial membrane of knee.	Excision of knee.	Died, 26 days.	
26.	Edward K. (819, L.)	9	M.	Soft union after excision of knee.	Reëxcision of parts.	Recovered, 100 days.	
27.	Caroline B. (1012, L.)	6	F.	Strumous knee.	Excision of joint.	Died, 15 days.	Pyæmia set in, and abscess in other knee.
28.	Caroline C. (199, Hol.)	5	F.	Caries of scaphoid.	Excision of scaphoid.	Recovered, 136 days.	

29.	George R. (866, Hol.)	26	M.	Caries of tarsal bones.	Excision of cuboid and scaphoid, and head of metatarsal bone. Excision of astragalus.	Recovered, 73 days.	Subsequent sloughing, and amputation of leg. (See No. 16.) The os calcis had been removed the previous year. Very useful foot, when seen some months after.
30.	Sidney M'P. (1254, Hol.)	6	M.	Caries of tarsus.			
31.	Mary A. K. (1364, Hol.)	14	F.	Caries of tarsus.	Excision of cuboid and head of metatarsal bone.	Recovered, 28 days.	

Besides the above, there were : sixteen for removal of dead bone, four for removal of tumours, one for reduction of dislocation, twelve for the cure of varicose veins, and three in which part of the foot was removed.



TABLE OF CASES ADMITTED DURING THE  
YEAR 1868.

Nature of injury.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other injury or disease.	Operations.
A. General injuries :					
<i>a.</i> Burns . . . . .	21	4	16·6	2	1
<i>b.</i> Scalds . . . . .	25	2	8	1	
B. Local injuries :					
1. Of the head :					
<i>a.</i> Scalp-wounds . . . . .	47	2	4·2	16	
<i>b.</i> Scalp-wounds exposing bone . . . . .	19	3	15·6	4	1
<i>c.</i> Concussion . . . . .	38	1	2·6	1	
<i>d.</i> Fracture of the skull . . . . .	2	2	100		
<i>e.</i> Compound . . . . .	10	6	60	1	2
<i>f.</i> Fracture of base . . . . .	8	2	25		
<i>g.</i> Contusions . . . . .	7			1	
<i>h.</i> Laceration of brain . . . . .	1	1	100		
2. Of the face :					
<i>a.</i> Fracture of the lower jaw . . . . .	2				
<i>b.</i> " " bones of face . . . . .	1				
<i>c.</i> Contusions . . . . .	15				
<i>d.</i> Wounds of face . . . . .	9				
<i>e.</i> " " eyeball . . . . .	10			1	3
3. Of the back :					
<i>a.</i> Fractures of the spine . . . . .	7	7	100	1	
<i>b.</i> Sprains and contusions . . . . .	45			2	
<i>c.</i> Wounds . . . . .	4				
<i>d.</i> Concussion of spinal cord . . . . .	5				
4. Of the neck :					
<i>a.</i> Cut-throat and wounds . . . . .	8			2	
<i>b.</i> Contusions . . . . .	3				
5. Of the chest :					
<i>a.</i> Fractured ribs . . . . .	29	2	6·9	9	
<i>b.</i> Contusions . . . . .	12			1	
<i>c.</i> Wounds of parietes . . . . .	2				
<i>d.</i> Fractured sternum . . . . .	3				
<i>e.</i> Wound of lung . . . . .	2			2	
6. Of the abdomen :					
<i>a.</i> Contusions . . . . .	8			1	
<i>b.</i> Injuries of scrotum . . . . .	5				
<i>c.</i> " " penis . . . . .	2				

Nature of injury or disease.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other injury or disease.	Operations.
B. Local injuries-- <i>continued</i> .					
6. Of the abdomen:					
<i>d.</i> Wounds of abdomen . . . . .	2				
<i>e.</i> Ruptured viscus . . . . .	4	2	50	2	
<i>f.</i> " pelvic viscus . . . . .	1	1	100		
<i>g.</i> Fractured pelvis . . . . .	2			1	
<i>h.</i> Ruptured urethra . . . . .	1	1	100	1	
7. Of the upper extremity:					
<i>a.</i> Contusions . . . . .	8				
<i>b.</i> Wounds of arm . . . . .	10				
<i>c.</i> " forearm . . . . .	3				
<i>d.</i> " hand . . . . .	13	1	7.7	2	
<i>e.</i> Fractured clavicle . . . . .	8			2	1
<i>f.</i> " humerus . . . . .	8	1	12.5	1	
<i>g.</i> " forearm . . . . .	8			2	
<i>h.</i> " scapula . . . . .	1				
<i>i.</i> Compound fracture . . . . .	10	5	50	3	5
<i>k.</i> Dislocated clavicle . . . . .	1				1
<i>l.</i> " elbow . . . . .	1				1
<i>m.</i> " wrist . . . . .	2				2
<i>n.</i> Sprained shoulder . . . . .	2				
<i>o.</i> " wrist . . . . .	2				
8. Of the lower extremity:					
<i>a.</i> Contusions . . . . .	82	2	2.4	4	
<i>b.</i> Wounds of thigh . . . . .	12	2	16.6	2	
<i>c.</i> " leg . . . . .	20			3	1
<i>d.</i> " foot . . . . .	13			1	1
<i>e.</i> Fractured femur . . . . .	38	4	10.5	4	
<i>f.</i> " neck of femur . . . . .	2				
<i>g.</i> " tibia . . . . .	10			1	
<i>h.</i> " fibula . . . . .	24	1	4.1	1	1
<i>i.</i> " patella . . . . .	13	1	7.7	1	
<i>k.</i> " leg . . . . .	35			1	
<i>l.</i> " foot . . . . .	3	1	33.3	1	1
<i>m.</i> Comminuted fracture . . . . .	1				
<i>n.</i> Compound " . . . . .	22	9	40.9	11	7
<i>o.</i> Dislocated hip . . . . .	1				1
<i>p.</i> " ankle . . . . .	1				1
<i>q.</i> Sprained hip . . . . .	1				
<i>r.</i> " knee . . . . .	11				
<i>s.</i> " ankle . . . . .	46				
<i>t.</i> Compound dislocation . . . . .	1	1	100	1	1
<i>u.</i> Ruptured vein . . . . .	3				
<i>v.</i> " tendon . . . . .	1				
C. General diseases:					
<i>a.</i> Erysipelas . . . . .	34	6	17.6	23	
<i>b.</i> Diffuse cellulitis . . . . .	22	9	40.9	9	
<i>c.</i> Sloughing . . . . .	6	2	33.3	6	
<i>d.</i> Tetanus . . . . .	7	5	71.4	7	
<i>e.</i> Pyæmia . . . . .	25	23	92	24	13
<i>f.</i> Gout . . . . .	1			1	

Nature of disease.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other disease or injury.	Operations.
C. General diseases— <i>continued</i> .					
g. Measles . . . . .	4	2	50	4	
h. Scarlatina . . . . .	3	..	..	3	
i. Rheumatism . . . . .	2	..	..	1	
D. Local diseases :					
1. Of the organs of motion :					
a. Abscess of bone . . . . .	5	2	40	1	2
b. Necrosis . . . . .	47	2	4·2	2	23
c. Caries . . . . .	21	3	14·2	3	8
d. Disease of spine . . . . .	25	2	8		
e. Lateral curvature . . . . .	1				
f. Tumours of bone . . . . .	5	1	20		1
g. Rickets . . . . .	1				
h. Periostitis . . . . .	23	1	4·3		
i. Cancer of bone . . . . .	1	1	100		
j. Synovitis . . . . .	63				
k. Ulceration of cartilages . . . . .	13	2	15·4		5
l. Abscess in joint . . . . .	42	8	19		20
m. Diseased ligaments . . . . .	5				
n. Hysterical joints . . . . .	3				
o. Rheumatic joints . . . . .	2				
p. Ankylosis . . . . .	6				
q. Morbus coxæ . . . . .	34				
r. Loose cartilage . . . . .	1				
s. Inflamed bursa patellæ . . . . .	31	3	9·7	3	
t. Bursal tumours . . . . .	1				
u. Thecal abscess . . . . .	15	1	6·6		
v. Contracted tendons . . . . .	26				
w. Effusion into sheaths of tendons	2				
x. Cyst of muscle . . . . .	2				
y. Deformity . . . . .	4				
2. Of the organs of circulation :					
a. Of the heart . . . . .	1	1	100	1	
b. Aneurysm . . . . .	7	1	14·2	3	2
c. Nævus . . . . .	4	..	..	..	2
d. Secondary hæmorrhage . . . . .	2	1	50		
e. Varicose veins . . . . .	17	1	5·8	2	12
f. Phlebitis . . . . .	7				
g. Inflamed absorbents . . . . .	15	..	..	5	
h. Suppurating glands . . . . .	34	2	5·8	3	
i. Hypertrophy of glands . . . . .	2	1	50		1
k. Cancerous glands . . . . .	1				
l. Tabes mesenterica . . . . .	1				
3. Of the organs of respiration :					
a. Disease of larynx . . . . .	3	..	..	1	
b. Bronchitis . . . . .	5	1	20	5	
c. Phthisis . . . . .	14	8	57·1	12	1
d. Pneumonia . . . . .	1	..	..	1	
e. Hydatid cyst of lung . . . . .	1	1	100	1	
4. Of the nervous system :					
a. Meningitis . . . . .	4	3	75	3	



Nature of disease.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other disease or injury.	Operations.
D. Local diseases— <i>continued</i> .					
4. Of the nervous system :					
<i>b.</i> Delirium tremens . . . . .	8	4	50	7	1
<i>c.</i> Organic disease of brain . . . . .	1				
<i>d.</i> Infantile paralysis . . . . .	2			1	1
<i>e.</i> Partial " . . . . .	2				
<i>f.</i> Sciatica . . . . .	1				
<i>g.</i> Neuroma . . . . .	3				3
<i>h.</i> Spina bifida . . . . .	1				1
<i>i.</i> Mania . . . . .	4	1	25	2	
<i>k.</i> Hysteria . . . . .	10			1	
5. Of the skin and appendages :					
<i>a.</i> Eczema . . . . .	20			2	
<i>b.</i> Rupia . . . . .	8				
<i>c.</i> Psoriasis . . . . .	2				
<i>d.</i> Lichen . . . . .	1				
<i>e.</i> Lepra . . . . .	1				
<i>f.</i> Lupus . . . . .	7				
<i>g.</i> Scabies . . . . .	3				
<i>h.</i> Erythema . . . . .	4				
<i>i.</i> Ulcers . . . . .	105			3	
<i>j.</i> Abscess . . . . .	44	3	6·8	2	
<i>k.</i> Cancerous ulcers . . . . .	2	1	50	1	
<i>l.</i> Fatty tumours . . . . .	11				11
<i>m.</i> Sebaceous " . . . . .	4				3
<i>n.</i> Encysted " . . . . .	1				1
<i>o.</i> Malignant " . . . . .	3				2
<i>p.</i> Carbuncle . . . . .	3				
<i>q.</i> Boils . . . . .	2				
<i>r.</i> Œdema . . . . .	6				
<i>s.</i> Ulcer of stump . . . . .	1				
<i>t.</i> Contracted cicatrix . . . . .	2				1
<i>u.</i> Onychia . . . . .	2				
<i>v.</i> Corns . . . . .	3				
<i>w.</i> Ingrowing toenail . . . . .	1				
<i>x.</i> Warts . . . . .	1				
6. Of the eye, ear, and nose :					
<i>a.</i> Ophthalmia . . . . .	27				
<i>b.</i> Corneitis . . . . .	45				
<i>c.</i> Sclerotitis . . . . .	7				
<i>d.</i> Iritis . . . . .	15				
<i>e.</i> Cataract . . . . .	13				11
<i>f.</i> Amaurosis . . . . .	8				
<i>g.</i> Glaucoma . . . . .	6				1
<i>h.</i> Abscess of eyeball . . . . .	1				
<i>i.</i> Cancer of eyeball . . . . .	2	1	50		
<i>k.</i> Disorganisation of eye . . . . .	1				1
<i>l.</i> Granular lids . . . . .	2				
<i>m.</i> Abscess in sac . . . . .	3				
<i>n.</i> Entropion . . . . .	2				1
<i>o.</i> Strabismus. . . . .	9			2	8

Nature of disease.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other disease or injury.	Operations.
D. Local diseases— <i>continued</i> .					
6. Of the eye, ear, and nose :					
<i>p.</i> Exophthalmia . . . . .	2				
<i>q.</i> Abscess of eyelid . . . . .	1				
<i>r.</i> Polypus nasi . . . . .	2	. . . . .			2
<i>s.</i> Ozæna . . . . .	1				
7. Of the organs of digestion :					
<i>a.</i> Abscess in mouth . . . . .	1				
<i>b.</i> Ulceration of mucous membrane . . . . .	3				
<i>c.</i> Fissured palate . . . . .	4	. . . . .			3
<i>d.</i> Harelip . . . . .	3	. . . . .			3
<i>e.</i> Carious teeth and abscess . . . . .	1				
<i>f.</i> Enlarged tonsils . . . . .	1	. . . . .			1
<i>g.</i> Epithelioma of lip . . . . .	5	. . . . .			4
<i>h.</i> Glossitis . . . . .	1				
<i>i.</i> Cancer of tongue . . . . .	7	. . . . .			1
<i>k.</i> Ranula . . . . .	2				
<i>l.</i> Strangulated hernia . . . . .	22	8	36·3	8	20
<i>m.</i> Reducible       " . . . . .	11				
<i>n.</i> Irreducible       " . . . . .	2				
<i>o.</i> Peritonitis . . . . .	6	5	86·6	6	3
<i>p.</i> Fæcal abscess . . . . .	3				
<i>q.</i> Ulcer of rectum . . . . .	2	. . . . .			1
<i>r.</i> Fistula in ano . . . . .	33	2	6	7	16
<i>s.</i> Hæmorrhoids . . . . .	16	. . . . .			7
<i>t.</i> Stricture of rectum . . . . .	6				
<i>u.</i> Prolapsus ani . . . . .	1				
<i>v.</i> Ulceration of gut and constriction . . . . .	1	1	100	1	
<i>w.</i> Polypus of rectum . . . . .	1				
<i>x.</i> Cancer of pharynx . . . . .	1				
8. Of the urinary organs :					
<i>a.</i> Albuminuria . . . . .	2	. . . . .		2	
<i>b.</i> Irritable bladder . . . . .	3				
<i>c.</i> Inflammation of bladder . . . . .	8	2	25	1	
<i>d.</i> Hæmaturia . . . . .	6				
<i>e.</i> Retention . . . . .	7				
<i>f.</i> Stone . . . . .	9	1	11·1	1	9
<i>g.</i> Stricture of urethra . . . . .	21	. . . . .		1	3
<i>h.</i> Fistula in perineo . . . . .	11	1	9	1	1
<i>i.</i> Enlarged prostate . . . . .	8				
<i>k.</i> Extravasation of urine . . . . .	1	1	100		
<i>l.</i> Ulceration of prostate . . . . .	1				
<i>m.</i> Cancer of bladder . . . . .	3	2	66·6		
<i>n.</i> Recto-urethral fistula . . . . .	2				
9. Of the male organs of generation :					
<i>a.</i> Syphilis . . . . .	9				
<i>b.</i> Secondaries . . . . .	31	1	3·2	1	
<i>c.</i> Gonorrhœa . . . . .	3				
<i>d.</i> Warts . . . . .	2				
<i>e.</i> Phimosi s . . . . .	1				

Nature of disease.	Total number of admissions.	Total number of deaths.	Percentage of mortality.	Complicated with other disease or injury.	Operations.
D. Local diseases— <i>continued</i> .					
9. Of the male organs of generation :					
<i>f.</i> Paraphimosis . . . . .	8				
<i>g.</i> Bubo . . . . .	8				
<i>h.</i> Hydrocele . . . . .	9	. . . . .		1	5
<i>i.</i> Hæmatocele . . . . .	1				
<i>k.</i> Orchitis . . . . .	9				
<i>l.</i> Cancer of scrotum . . . . .	2	. . . . .		. . . . .	2
<i>m.</i> Varicocele . . . . .	1	. . . . .		. . . . .	1
<i>n.</i> Tumour of testis . . . . .	3	. . . . .		. . . . .	3
10. Of the female organs of generation :					
<i>a.</i> Abscess of breast . . . . .	5	. . . . .		1	1
<i>b.</i> Milk-abscess . . . . .	1				
<i>c.</i> Chronic mammary tumours . . . . .	2	. . . . .		. . . . .	1
<i>d.</i> Scirrhus tumours . . . . .	9	. . . . .		. . . . .	8
<i>e.</i> Serocystic „ . . . . .	3	. . . . .		. . . . .	3
<i>f.</i> Simple cystic . . . . .	1	. . . . .		. . . . .	1
<i>g.</i> Abscess of labium . . . . .	4				
<i>h.</i> Malignant disease of labium . . . . .	2	1	50	. . . . .	1
<i>i.</i> Gonorrhœa . . . . .	3				
<i>k.</i> Leucorrhœa . . . . .	3				
<i>l.</i> Syphilis . . . . .	5				
<i>m.</i> Secondaries . . . . .	29				
<i>n.</i> Vesico-vaginal fistula . . . . .	3	. . . . .		. . . . .	2
<i>o.</i> Ovarian tumour . . . . .	4				
<i>p.</i> Puerperal peritonitis . . . . .	1	1	100	1	
11. Of the blood-glands :					
<i>a.</i> Goître . . . . .	1				

WILLIAM LEIGH,  
*Surgical Registrar.*

November 1869.





## SUPPLEMENT TO DR. CLIFFORD ALLBUTT'S ARTICLE ON SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.

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SINCE my paper (see page 45) was corrected in proof, I have had two more very interesting cases of syphilitic disease of the encephalon under my care. Both are now in the Leeds Infirmary. The first was a man, sent to me by Mr. Lee of Lister Hills, with long and obstinate neuralgia of the supra-orbital branch on the right side. The distracting pain, attended with nausea and vomiting, made life unendurable. I at once suspected syphilis; and the diagnosis was corroborated, if not confirmed, by the discovery of commencing optic neuritis in both eyes. I hope I was not wrong in endeavouring for some days to subdue the neuralgia by common remedies, in order to exhibit the subsequent effects of the iodide more plainly. So I tried several remedies, including aconite, a blister to the supra-orbital notch, where the nerve was tender, &c. These means were of no avail; I therefore commenced the iodide; and in a couple of days the patient was sleeping tranquilly; and now, after a week of the treatment, is cured. My colleague, Mr. Wheelhouse, has just placed the second and almost quite similar case under my charge. Both men confessed to chancre and "secondaries."

But my reason for asking Dr. Ogle to give me a few lines in an Appendix was to enable me to bring forward a very interesting case in support of the case of motor paraplegia of syphilitic origin, which I have related in my paper. The case is reported by Bayer (*Arch. f. Heilkunde*, x. i. p. 105, 1869), and is entitled "Acute ascending Palsy of the Cord cured by Antisyphilitic Treatment." I give the account as briefly as possible.

A man, æt. 30, of previously good health, was affected five years before with syphilitic symptoms. He was cured by mercurials. In August 1866 he began to have stiff neck, and at the same time there appeared over the lower cervical and first dorsal vertebræ a flat, hard, tender tumour of the size of a crown-piece. This disappeared in six or eight months. In December 1866 a node appeared on the parietal bone. On May 7, 1867, the patient noticed a weight and uncertainty of the legs on mounting and dismounting from his horse. These symptoms rapidly increased; the next day he had difficulty in rising from bed; and in two days more he could not leave his bed, and was fully paraplegic. Movement of the upper limbs became likewise more difficult, and in time the patient lost the power of lifting the lightest objects. Emission of urine was difficult, and only attained by pressure

on the hypogastric region. The rectum was emptied by lavements. Sensibility was perfect in the upper limbs, but enfeebled in the lower, and more on the right than the left side. The cranial tumour was present. The patient was under the care of Professor Wagner. On May 15th he prescribed mercurial inunction, and iodide of potassium internally. He also faradised the legs daily. At the end of May there was marked amendment, motion and sensation being much improved. On June 5th there was evidence of mercurial poisoning, and the inunctions were omitted, the rest of the treatment being continued. On June 16th the urine and stools were normally passed, and the cranial tumour had gone. On June 21st the patient could stand, and even walk with help; and on July 1st he was considered quite cured. Such, in brief, is this interesting case. I believe the mercury and faradism were quite unnecessary.

T. C. A.



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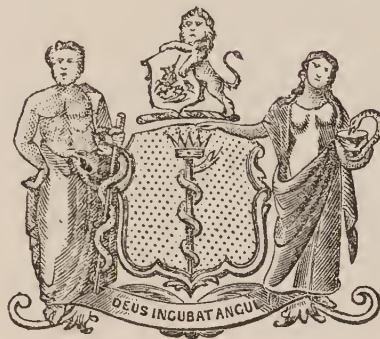
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# ST. GEORGE'S HOSPITAL

Medical



School.

*Session 1869-70.*

THE WINTER COURSE OF INSTRUCTION WILL COMMENCE ON  
FRIDAY, OCTOBER 1ST,

*With an Introductory Address by DR. WADHAM, at 2 P.M., at the  
Hospital.*

## MEDICAL OFFICERS.

Consulting Physicians.

Dr. WILSON; Dr. BENICE JONES; Dr. PITMAN.

Physicians.

Dr. FULLER; Dr. BARCLAY; Dr. JOHN OGLE; Dr. WADHAM.

Assistant-Physicians.

Dr. DICKINSON; Dr. WILLIAM OGLE.

Physician Accoucheur.

Dr. JOHN CLARKE.

Consulting Surgeons.

Mr. CÆSAR HAWKINS, F.R.S.; Mr. CUTLER; Mr. TATUM.

Surgeons.

Mr. PRESCOTT HEWETT; Mr. POLLOCK; Mr. HENRY LEE;  
Mr. HOLMES.

Assistant-Surgeons.

Mr. ROUSE; Mr. PICK.

Ophthalmic Surgeon.

Mr. HENRY POWER.

Orthopædic Surgeon.

Mr. BRODHURST.

Dentist.

Mr. VASEY.



LECTURERS.		Mon.	Tues.	Wed.	Thurs.	Friday.	Sat.
<i>Winter Session.</i>							
Drs. FULLER and WADHAM.							
Clinical Medicine . . . . .		2	..	..	..	..	..
Dr. JOHN CLARKE.							
Clinical Lectures on Diseases of Women . . . . .		..	..	..	..	2	..
Messrs. HEWETT and POLLOCK.							
Clinical Surgery . . . . .		..	2	..	..	..	..
Dr. BARCLAY.							
Principles and Practice of Physic . . . . .		9	..	9	..	9	..
Mr. HOLMES.							
Principles and Practice of Surgery . . . . .		..	9	..	9	..	9
Dr. JOHN OGLE.							
Pathology and Morbid Anatomy . . . . .		..	..	..	3	..	.
Mr. HENRY POWER.							
Ophthalmic Surgery . . . . .		..	..	10	..	..	..
Mr. BRODHURST.							
Orthopædic Surgery . . . . .		..	10	..	..	..	..
Mr. ROUSE.							
Descriptive and Surgical Anatomy . . . . .		3	..	3	..	3	..
Dr. WILLIAM OGLE.							
Physiology and General Anatomy . . . . .		..	3	..	3	..	11
Dr. NOAD.							
Chemistry . . . . .		..	11½	..	11½	..	11½
<i>Summer Session.</i>							
Dr. JOHN OGLE.							
Clinical Medicine . . . . .		2	..	..	..	..	..
Mr. HENRY LEE.							
Clinical Surgery . . . . .		..	2	..	..	..	..
Dr. JOHN CLARKE.							
Midwifery, and Diseases of Women and Children . . . . .		9	..	9	..	9	..
Dr. JOHN OGLE.							
Pathology and Morbid Anatomy . . . . .		..	3	..	3	..	..
Dr. DICKINSON.							
Materia Medica . . . . .		3	..	3	..	3	..
Dr. WADHAM.							
Medical Jurisprudence . . . . .		..	9	..	9	..	9
Dr. BLANDFORD.							
Psychological Medicine . . . . .		..	..	3	..	..	..
Mr. ROUSE.							
Operative Surgery . . . . .		..	..	..	..	..	..
Mr. VASEY.							
Dental Surgery . . . . .		..	10	..	..	..	..
Mr. CHILD.							
Botany . . . . .		..	3	..	3	..	3
Dr. BRIGHT.							
Comparative Anatomy . . . . .		4½	..	..	..	4½	..
Dr. BARCLAY.							
Clinical Demonstrations of Diseases of the Skin . . . . .		..	..	..	2½	..	..
Dr. NOAD.							
Practical Chemistry . . . . .		10	..	10	10	10	..

Medical Tutor.  
Mr. EDGELOW.

## I.

Gentlemen may become PERPETUAL PUPILS by paying a compounding fee of One Hundred Guineas. Perpetual Pupils are entitled to admission to the practice of the Physicians and Surgeons, to all the Lectures (except Practical Chemistry), to compete for all Prizes and Exhibitions, to hold the appointments of House-Physician, House-Surgeon, and Assistant House-Surgeon, and to become Clinical Clerks for two periods of three months each, and Dressers for two similar periods. This payment must in all cases be made at the time of entry.

## II.

Gentlemen will be admitted to the Hospital Practice and Lectures required for the License of the Royal College of Physicians, for the Diploma of Member of the Royal College of Surgeons, and for the License of the Society of Apothecaries, with the exception of Practical Chemistry, on payment of the following fees, viz. Forty Guineas for the First Year of Study, Forty Guineas for the Second Year of Study, and Ten Guineas for each Succeeding Year. By payment of these fees, a Pupil is entitled to hold the offices of Clinical Clerk and Dresser, but not to become House-Physician or House-Surgeon, or to compete for the "William Brown Exhibition" and the "Clinical" Prizes. Pupils who have entered under this rule may at any time become Perpetual by making up their total payments to One Hundred and Ten Guineas.

## III.

Gentlemen will be admitted to the Lectures and Hospital Practice required for the Diploma in Dental Surgery by one payment of Forty-five Pounds. This sum does not include Practical Chemistry.

## IV.

Gentlemen may enter to the Hospital Practice and Lectures separately, on the following terms, viz. :

## Hospital Practice.

	Six Months.	Three Years.	Perpetual.
	£ s. d.	£ s. d.	£ s. d.
Physicians' Practice . . .	8 8 0 . .	16 16 0 . .	25 4 0
Surgeons' Practice . . .	15 15 0 . .	21 0 0 . .	42 0 0

Attendance of the Physicians and Surgeons daily at One o'clock ;  
Surgical Operations on Thursdays at One o'clock.

## LECTURES.

	WINTER SESSION.	One Course.			Perpetual.		
		£	s.	d.	£	s.	d.
Descriptive and Surgical Anatomy . . . . .		6	6	0	7	7	0
Physiology and General Anatomy . . . . .		6	6	0	7	7	0
Chemistry . . . . .		6	6	0	8	8	0
Medicine . . . . .		6	6	0	7	7	0
Surgery . . . . .		6	6	0	7	7	0
Pathology and Morbid Anatomy . . . . .		5	5	0			
SUMMER SESSION.							
Materia Medica . . . . .		4	4	0	5	5	0
Midwifery . . . . .		5	5	0	6	6	0
Botany . . . . .		3	3	0	4	4	0
Medical Jurisprudence . . . . .		4	4	0	5	5	0
Practical Chemistry (including the use of apparatus and materials) . . . . .		4	4	0			

**Medical Tutor.** The studies of the Pupils will be superintended by a Medical Tutor, who will hold periodical examinations of all the Students, and will especially devote himself to those who are preparing for examination for their Diploma. These examinations will be conducted three times a week, and each Student will pay One Guinea per annum for his assistance during the first three years of his attendance. A fee of Five Guineas in addition will be charged to those who desire to be instructed in the special subjects required for each examination at the University of London.

**House Physician.** This Officer is appointed annually, on the recommendation of the Medical School Committee, from among the Physicians' Perpetual Pupils. He has charge of half the patients in the Medical Wards, in the absence of the Physicians, and pays Fifty Pounds to the Treasurers of the Hospital for Board and Residence.

**House Surgeons.** The appointment to these offices is made half-yearly, on the nomination of the Medical School Committee, from among the Surgeons' Perpetual Pupils. The Pupil selected for this appointment is entitled to hold it for Twelve Months, on payment of Fifty Pounds to the Treasurers of the Hospital for Board and Residence.

**Assistant House Physician.** One of the Physicians' Perpetual Pupils is appointed for six months to aid the Assistant Physicians in prescribing for the Out-Patients. The tenure of this office will give a prior claim to the appointment of House Physician; and until a second House Physician is appointed, the Assistant may retain his office for a second term of six months, if approved by the Medical School Committee.

**Assistant House Surgeon.** One of the Surgeons' Perpetual Pupils is appointed half-yearly to attend in the Surgical Out-Patient Department. If his conduct be approved of, he will have the first claim to the office of House Surgeon vacant at the expiration of his period of office.



**Clinical Instruction.** The Pupils of the Hospital requiring Certificates of Attendance on Hospital Practice will be divided into Classes, under the superintendence of the Physicians and Surgeons in rotation. The gentlemen forming these classes will be placed in charge of the cases as Clinical Clerks and Dressers under the direction of the Medical Officer to whom they are attached.

**Ophthalmic Department.** Persons labouring under Diseases of the Eye are seen twice a week as Out-Patients, and two Wards are reserved for cases of greater severity. A Course of Lectures on Diseases of the Eye is given, and the use of the Ophthalmoscope demonstrated from the cases under treatment.

**Orthopaedic Department.** Patients suffering from the various classes of Deformities are seen twice a week as Out-patients, and beds are set apart for the more severe cases under the care of the Orthopaedic Surgeon. A Course of Lectures is given on the subject to explain the methods employed for their relief.

**Orthopaedic Assistant.** One of the Senior Pupils is appointed from time to time by the Medical School Committee to assist the Orthopaedic Surgeon and take charge of the cases during his absence.

**Aural Surgery.** Patients suffering from Diseases of the Ear are seen on Thursdays as Out-patients.

**Skin Diseases.** Practical demonstrations from Patients labouring under these diseases will be given by the Lecturer on Medicine, in illustration of his course, when the students will be instructed in the means of diagnosis and the principles of treatment.

**A Maternity Department,** for the delivery of married lying-in women at their own homes, is established at the Hospital; and a Ward is devoted to the reception of women suffering under diseases peculiar to the sex, under the superintendence of the Obstetric Physician.

**Obstetric Assistant.** This officer is appointed annually by the Weekly Board and is eligible for reappointment. He resides and boards in the Hospital, receives a yearly salary of One Hundred Pounds, and must be a legally qualified practitioner.

**Vaccination** will be performed every Thursday morning at ten o'clock, and instruction in Vaccination given by the Obstetric Assistant.

**Dental Surgery.** Mr. Vasey will deliver a Course of Lectures on Dental Surgery during the Summer Session. Fee to Pupils (not being Pupils of the Hospital), One Guinea.

The **Library and Reading-Room** are open during the greater part of the day. Every Pupil of the Hospital has to subscribe the sum of Ten Shillings and Sixpence to the Library at the commencement of each Winter Session.

The **Museum** is open daily to the Pupils of the Hospital.

**Curator.** A Curator of the Pathological Museum is appointed annually by the Weekly Board from among the Senior Pupils, on the recommendation of the Medical School Council, with a Salary of Fifty

Pounds per annum. One of the Pupils is appointed by the Medical School Committee to assist the Curator in performing Post-Mortem Examinations.

**Registrars.** A Medical and a Surgical Registrar are appointed annually by the Weekly Board from among the Senior Pupils, on the recommendation of the Medical School Council, each with a Salary of Fifty Pounds per annum.

**Demonstrator of Anatomy.** A paid Demonstrator will be appointed annually by the School Committee on the recommendation of the Lecturer on Anatomy, from among the Senior Students. In this appointment regard will be specially had to his acquaintance with the subject, and the manner in which he has conducted himself in the dissecting-room. He will assist the Pupils in their anatomical studies, and superintend the dissecting-room in the absence of the Lecturer.

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### REGULATIONS RESPECTING STUDENTS.

THE ATTENTION OF STUDENTS IS PARTICULARLY CALLED TO THE FOLLOWING REGULATIONS.

1. The Physicians' Perpetual Pupils are alone eligible for the office of House-Physician.
2. The Surgeons' Perpetual Pupils are alone eligible for the office of House-Surgeon.
3. All Pupils of the Hospital may become Candidates for the several offices of Medical and Surgical Registrar, Obstetric Assistant, Curator of the Museum, and Demonstrator of Anatomy. They are also entitled to attendance on the Maternity Department, and the Practice of Ophthalmic and Dental Surgery, without additional fee.
4. Certificates of attendance on Hospital Practice will not be signed for any Pupil who has not acted as Clinical Clerk and Dresser to the Physicians and Surgeons as may be from time to time required of him by the Dean of the Medical School.
5. Certificates of attendance on Lectures will not be signed for any Pupil who does not attend regularly and conduct himself with propriety.
6. At the beginning of every Session each Student must apply to Dr. BARCLAY, the Treasurer of the Medical School, or in his absence to Mr. HOLMES, the Dean of the School, for the Tickets required. The tickets—before they can be registered—must be taken to the respective Lecturers for their signatures.
7. The Schedules, as soon as procured from the College and Hall, should be brought to Mr. HOLMES, in order that they may be filled up in due course and signed by the respective Teachers. Students ought to apply to him for the Certificates of their past Courses of Lectures before entering on a new Session.

**Attendance of Physicians and Surgeons at the Hospital.**

Monday and Friday at 1 P.M. { Dr. BARCLAY and Dr. JOHN OGLE.  
 { Mr. HEWETT and Mr. HOLMES.  
 Tuesday and Saturday at 1 P.M. { Dr. FULLER and Dr. WADHAM.  
 { Mr. POLLOCK and Mr. HENRY LEE.

*Out-Patients are seen on*

Monday and Friday at 12 P.M., by Dr. WILLIAM OGLE and Mr. ROUSE.  
 Tuesday and Saturday „ „ Dr. DICKINSON and Mr. PICK.  
 Dr. JOHN CLARKE attends to see In-Patients on Tuesday and Saturday, at  
 1 P.M., and Out-Patients on Thursday, at 12 o'clock.

Eye-Patients are seen on Monday and Friday at 9 A.M., by Mr. POWER.  
 Mr. BRODHURST attends to see In and Out-Patients on Monday, Wednesday,  
 and Friday, at 2 P.M.

Mr. Vasey attends at the Hospital on Tuesday and Saturday, at 9 A.M.,  
 and on Thursday at 1 P.M.

Patients with Diseases of the Ear are seen on Thursday at Twelve by  
 Mr. ROUSE.

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\* \* *Further information may be obtained from Dr. BARCLAY, the Treasurer  
 of the School, from Mr. HOLMES, the Dean of the School, and from any  
 of the Lecturers, or Medical Officers of the Hospital.*

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**EXHIBITIONS AND PRIZES,**

WITH THE NAMES OF THE PRIZEMEN IN 1869.

**“The William Brown Exhibition”**

*Of Forty Pounds per Annum, tenable for Three Years.*

Mr. ROWLAND.

This Exhibition was founded by the Widow of William Brown, Esq., formerly a Pupil of St. George's Hospital, to be competed for by Perpetual Pupils, who have commenced their third but not completed their fourth Winter Session. It will be “bestowed on the Candidate who shall show the best general fitness for the exercise of the Medical Profession, and whose moral conduct shall in all respects be satisfactory.”

**Sir Charles Clarke's Prize for Good Conduct.**

Mr. VASEY.

Sir Charles Clarke, Bart., M.D., formerly a Pupil of St. George's Hospital, left the sum of 200*l.* Consols, the interest of which was to be awarded annually to the Student of the Hospital “who, by reason of his general good conduct during the preceding year, should be considered the most deserving.”

*This Prize will be awarded by the Medical School Committee at the end of the Summer Session.*

**The Thompson Medal.**

Mr. BARNES.

Mr. Serjeant Thompson, who was for many years Treasurer of St. George's Hospital, invested the sum of 100*l.* Three per Cent Stock, in the names of Trustees, for the purchase of a Silver Medal annually, to be awarded for the best Clinical Report of Medical and Surgical Cases observed in the Hospital during the preceding twelve months. The



cases are to be accompanied by observations, and are not to exceed twenty in each department.

### Sir Benjamin Brodie's Clinical Prize in Surgery.

Mr. PALMER.

This Prize will be awarded to the Perpetual Pupil of the Hospital who shall have delivered to the Surgeons the best Report of not more than twenty Surgical cases which have occurred in the Hospital during the preceding twelve months, each case being accompanied with notes illustrative of its pathology, diagnosis, and treatment.

### The Acland Clinical Prize in Medicine.

Mr. NOAD.

Dr. Acland, of Oxford, has offered for competition a Prize to the Pupil of the Hospital who shall produce the best record of not more than twelve cases of disease treated in the preceding twelve months. The record to be illustrated by drawings and diagrams when possible, and accompanied by physiological and pathological remarks in explanation of the treatment.

*Competitors for the THOMPSON MEDAL and the CLINICAL PRIZES must send their Reports to the Secretary of the Medical School Committee on or before the 30th of June. The Reports must not have the name of the Candidate affixed, but must bear a motto on the outside, and be accompanied by a sealed envelope bearing the same motto, and containing his name and address.*

### The Henry Charles Johnson Memorial Prize in Anatomy.

Mr. BABER.

This Prize will be awarded to that Pupil who shall, in the judgment of the Medical School Committee, exhibit the greatest proficiency in PRACTICAL ANATOMY.

*The Examination for this Prize will be held at the close of the Winter Session.*

### General Proficiency Prizes.

At the close of the Summer Session a General Examination of all the Pupils will be held, when a CERTIFICATE OF PROFICIENCY will be given to each one who passes to the satisfaction of the Examiners, and the following PRIZES awarded to the most distinguished, viz.

TO PUPILS IN THEIR FIRST YEAR, TEN GUINEAS.

Mr. GOLDSMITH ; *Extra Prize*, Mr. STRADLING.

*The subjects of Examination for the first year will be Anatomy, Physiology, Chemistry, and Botany.*

TO PUPILS IN THEIR SECOND YEAR, TEN GUINEAS.

Mr. NORMAN.

*The subjects of Examination for the second year will be Anatomy, Physiology, Chemistry, and Materia Medica.*

TO PUPILS IN THEIR THIRD YEAR, TEN GUINEAS.

Mr. BARNES.

*The subjects of Examination for the third year will be Principles and Practice of Medicine and Surgery, Pathology, and Midwifery.*

*The names of those Students who pass the above Examinations will be published in alphabetical order, and the results of these Examinations and of those for the Clinical Prizes will be taken into account in appointing the House Physician and House Surgeons.*

**LECTURES.**

*The Winter Session commences October 1, and terminates March 31.*

*The Summer Session commences May 1, and terminates July 31.*

**Descriptive and Surgical Anatomy.**

BY MR. ROUSE.

In these Lectures, the numerous parts and organs of which the human body consists are described with reference to their form and mutual relations, especially in their connexion with Surgery. Recent Dissections, Drawings, and Preparations are made use of for the purpose of illustration.

**Physiology and General Anatomy.**

BY DR. WILLIAM OGLE.

The structure and properties of the different tissues common to several organs are minutely described in this Course, as also the functions performed by those organs, either separately, or combined for a common purpose, and the laws which govern their actions.

These Lectures are illustrated by recent Dissections and Anatomical Preparations, and by Experiments and Diagrams.

**Practical Anatomy.**

Demonstrator of Anatomy, Mr. Byam. Assistant Demonstrator, Mr. Baber. Demonstrator of Physiology, Mr. Sims. Demonstrations on Osteology will be given by Mr. Byam. Demonstrations in Histology and the Elementary facts of Physiology by Mr. Sims.

A Fee of Three Guineas is charged to each Student requiring a Certificate, in order to provide subjects for dissection and meet the other expenses connected with the Dissecting-room.

**Operative Surgery—Summer Session.**

Pupils will have the opportunity to enter a Class under the superintendence of Mr. Rouse, who will assist and direct them in the performance of the various operations of Surgery.

Fee for the Course . . . . Four Guineas.

**Comparative Anatomy.**

BY DR. BRIGHT.

This Course of Lectures will be delivered during the Summer Session. The Course will have special reference to the Examinations of the Universities of Oxford, Cambridge, and London, and the Fellowship Examination of the Royal College of Surgeons. The Lectures, twenty-five in number, will be illustrated by specimens, preparations, and recent dissections.

Fee for the Course . . . . Four Guineas.

### Principles and Practice of Physic.

BY DR. BARCLAY.

A general view of Symptoms in their relation to Disordered Function, and to Altered Structure, is given in this Course of Lectures; and general facts and doctrines which have been ascertained and established are explained in so far as they serve as a basis for diagnosis or a guide in treatment. The Diseases of the Skin will be demonstrated on patients affected by them. A portion of the course will be devoted to the subject of public health and hygiene as required by the College of Physicians.

### Psychological Medicine.

BY DR. BLANDFORD.

Twelve Lectures on Insanity will be given, consisting of an outline of Psychology, with a description of the rise and Progress of Intellectual, Emotional, and Volitional Disorder; the Causation of Insanity, its Varieties, Pathology, and Treatment. An exposition will also be given of the law of Insanity, certificates of Lunacy, and evidence in Medico-legal cases.

Candidates for the Membership of the College of Physicians are now examined in this subject.

### Pathology and Morbid Anatomy.

BY DR. JOHN OGLE.

The course will include a general consideration of the nature of the various morbid actions set up in the body; also the morbid anatomy of organs and tissues, and an inquiry into the condition of the secretions under the influence of disease. The history of tumours and morbid growths and the nature of the various concretions and degenerations which are met with will be considered, and the use of the microscope and of chemical re-agents in the investigation and diagnosis of disease will be explained and exemplified. The mode also of examining patients at the bedside, including the application of the stethoscope and other instruments in the examination of patients, and the proper manner of conducting post-mortem examinations will be treated of.

The course will be illustrated by drawings, diagrams, and models, and by specimens from the Pathological Museum; also by recent specimens from the post-mortem room, furnished by the Curator.

### Principles and Practice of Surgery.

BY MR. HOLMES.

These Lectures are intended to embrace an exposition of the principles on which the science of Surgery is founded, and also of the chief rules which govern its practice. Each Lecture will be illustrated by



cases in the Hospital and preparations from the Museum. The Pupils attending these Lectures will be examined practically at short intervals in diagnosis on the living subject, and in bandaging and minor Surgery. A course of demonstrations on the Laryngoscope will be given by Mr. Holmes.

### Ophthalmic Surgery.

BY MR. HENRY POWER.

The Lectures on Ophthalmic Surgery will be delivered at 10 A.M. on Wednesday, throughout the Winter and Summer Sessions, and will include a systematic Course on the Diseases of, and Operations on, the Eye, with instruction in the use of the Ophthalmoscope. The Lectures, as far as practicable, will be illustrated by cases under treatment.

### Orthopædic Surgery.

BY MR. BRODHURST.

These Lectures will embrace the description of the various forms of Congenital and Non-Congenital Deformities of the Human Body. They will be illustrated by cases selected for that purpose, and demonstrations will be given of the various means and appliances, surgical and mechanical, which are employed in their treatment.

### Dental Surgery.

BY MR. VASEY.

A Course of Lectures on Dental Surgery will be given during the Summer Session.

### Chemistry.

BY HENRY M. NOAD, PH.D. F.R.S.

These Lectures will be divided into three Sections.

The *First* will be occupied with a full consideration of the fundamental doctrines of Chemistry.

In the *Second* division, the materials of the Inorganic world, and their most important combinations, will be examined.

The *Third* division will be devoted to Organic Chemistry.

In this division a Series of Lectures on Physiological and Pathological Chemistry will be delivered by Dr. Reginald Thompson, F.C.S.

### Practical Chemistry.

A commodious Laboratory has been arranged, and every requisite provided to carry into full effect the regulations of the Medical Corporations, requiring "a specific course of Instruction to be given in the Laboratory, with an opportunity of Personal Manipulation in the ordinary Processes of Chemistry, and of acquiring a knowledge of the various Re-agents for Poisons."

Fee for the use of Apparatus and Materials . . . Four Guineas.

### Practical Pharmacy.

Gentlemen may be instructed in Pharmacy in the Laboratory and Dispensary of the Hospital.

### Midwifery and Diseases of Women and Children.

BY DR. JOHN CLARKE.

These Lectures comprehend, *First*, the Anatomy, Physiology, and Pathology of the unimpregnated Uterine System; *Secondly*, a description of the Gravid Uterus; *Thirdly*, the Symptoms and Treatment of all the Varieties of Parturition; *Fourthly*, the Diseases of Puerperal Women; and *Fifthly*, the Diseases of Infants. Numerous Drawings and Engravings, and an extensive Museum, are used to illustrate these Lectures.

Pupils have ample opportunities of learning Practical Midwifery, under the superintendence of the Obstetric Physician, by attendance on married women lying-in at their own homes.

A Course of Clinical Instruction, and in the Winter a Course of Clinical Lectures, on the Functional and Organic Diseases of Women will be given, exemplified by cases admitted into the Ward set apart for women suffering under ailments peculiar to the sex.

### Materia Medica.

BY DR. DICKINSON.

This Course embraces a consideration of all substances which are used as Medicines, including their source or mode of production, their physical and chemical properties, their effects upon the human body in health and disease, and their several combinations and modes of administration. An extensive collection of Materia Medica is open for the use of the Students.

### Medical Jurisprudence.

BY DR. WADHAM.

The application of the Physiological, Medical, and Surgical Sciences to the elucidation of Legal Investigations, including Toxicology, is taught in these Lectures.

### Botany.

BY MR. CHILD, F.L.S.

This Course comprises the Anatomy and Physiology of the Vegetable Kingdom, including an explanation of the Natural and Artificial Systems of Classification. Fresh and dried Specimens of Plants, with numerous drawings, are used to illustrate these Lectures, and occasional demonstrations at the Botanical Gardens. Microscopical demonstrations are also given in the course of the Session.

## REGULATIONS OF THE ROYAL COLLEGE OF PHYSICIANS.

Every Candidate for the College License shall produce satisfactory evidence—Of having attained the age of twenty-one years—Of moral character—Of having passed before the commencement of professional study a preliminary Examination in the subjects of General Education—Of having been registered as a Medical Student in the manner prescribed by the General Medical Council—Of having been engaged in professional studies during four years, of which at least three winter and two summer sessions shall have been passed at a recognised Medical School or Schools, and of having attended during three winter and two summer sessions the Medical and Surgical Practice at a recognised Hospital or Hospitals; and of having been engaged during six months in the Clinical Study of Diseases peculiar to Women; *the commencement of the period of professional Study will in future date from the registration of the Student by the Registrar of the Medical Council*—Of having studied the following subjects: Anatomy (with dissections) during Two Winter Sessions—Physiology, Two Winter Sessions—Chemistry, Six Months—Practical Chemistry, Three Months—Materia Medica, Three Months—Practical Pharmacy, Three Months—Botany, Three Months—Principles and Practice of Medicine (*it is desired that the study of the Principles and Practice of Medicine should comprise the study of the Principles of Public Health*), Two Winter Sessions—Morbid Anatomy (*including attendance and instruction in the Post-Mortem Room during the period of Clinical Study*), Six Months—Clinical Medicine, Two Winter Sessions and Two Summer Sessions—Principles and Practice of Surgery, Two Winter Sessions—Clinical Surgery, Two Winter Sessions and Two Summer Sessions (*by Clinical Medicine and Clinical Surgery are meant special study and instruction at the bedside, with Lectures on cases. Attendance on these Lectures must not commence until after the First Winter Session at a recognised Medical School*)—Midwifery and Diseases peculiar to Women, Three Months (*Certificates must be produced of attendance on not less than twenty labours, and of instruction and proficiency in Vaccination*)—Forensic Medicine, Three Months (*the Winter Session comprises a period of Six Months, and the Summer Session a period of Three Months*)—Of having passed the professional examinations. N.B. Blank Forms of the required Certificates may be obtained on application at the College.

The Examination is divided into two parts: the first comprises Anatomy and Physiology, and may be passed at any time after the termination of the Second Winter Session at a recognised Medical School. The second part embraces Surgical Anatomy and Surgery, Materia Medica and Chemistry, Medical Anatomy, Medicine (*including the Principles of Public Health*), and Midwifery. The Examinations



are held in the first and second weeks of February, April, July, October, and December. Fourteen days' notice in writing is required to be given to the Registrar of the College. Any Candidate who shall produce evidence of having passed an Examination in Anatomy and Physiology satisfactory to the College will be exempt from the first part of the Examination for the College License. Any Candidate who shall have obtained a degree in Surgery at a University approved by the College, or a Diploma from one of the Royal Colleges of Surgeons, after a course of study and examination satisfactory to the College, will be exempt from reëxamination in Surgical Anatomy and the Principles and Practice of Surgery.

Candidates for admission as Members of the College who have not obtained a Degree in Arts in a recognised University, or passed an equivalent examination prior to the commencement of professional studies, will be examined in the subjects of General Education by the President and Censors of the College.

They will be required to produce the following Certificates : 1. Of having attained the age of twenty-five years. 2. Of good moral character and conduct. 3. Of having been engaged during five years in the acquirement of professional knowledge, of which four at least shall have been passed at some recognised School or Schools. 4. Of having attended Medical Practice during Three Winter and Three Summer Sessions, and Surgical Practice during Three Winter and Two Summer Sessions, of a Hospital containing at least 100 beds. 5. Of having attended Lectures on Clinical Medicine during Three Winter and Three Summer Sessions. 6. Of having attended all the other Lectures required of Candidates for the License.

Any Candidates who shall have passed an Examination in Anatomy and Physiology by any examining body recognised by the College will be exempt from reëxamination on these subjects.

Any Candidate who shall have obtained a Degree in Surgery at a University recognised by the College for this purpose, or shall have passed an Examination in Surgery at one of the Royal Colleges of Surgeons, after a course of study and Examination satisfactory to the College, will be exempt also from reëxamination in Surgical Anatomy and Surgery.

Any Candidate who has already obtained the Degree of Doctor or Bachelor of Medicine, at a University recognised by the College, shall be exempt (if the Censors think fit), from all or any parts of the Examination, except those on Medical Anatomy, the Principles and Practice of Medicine (*including the Principles of Public Health*), and on Psychological Medicine.

Every Candidate will be required to translate into English a passage from a Latin author, and he will have an opportunity of showing a knowledge of Greek, or of one or more of the European Languages.

## REGULATIONS OF THE ROYAL COLLEGE OF SURGEONS.

Candidates for the Diploma of Member will be required to produce the following Certificates, viz. Of being twenty-one years of age—Of having been engaged during four years in the acquirement of professional knowledge—Of having studied Practical Pharmacy during three months—Of having attended Lectures on Anatomy during Two Winter Sessions—Of having performed dissections during not less than Two Winter Sessions—Of having attended Lectures on Physiology during Two Winter Sessions—Of having attended Lectures on Surgery during Two Winter Sessions, of which one Course must not be earlier than the Third Winter Session at a recognised Medical School—Of having attended one Course of Lectures on each of the following subjects, viz. Chemistry, Materia Medica, Medicine, and Midwifery—Of having attended at a recognised Hospital or Hospitals in the United Kingdom the Practice of Medicine, and Clinical Lectures on Medicine, during One Winter and One Summer Session—Of having attended at a recognised Hospital or Hospitals in the United Kingdom or Colonies the Practice of Surgery, and Clinical Lectures on Surgery, during Three Winter and Two Summer Sessions—Of having been instructed in Vaccination—Of having subsequently to the completion of two years' professional education taken charge of Patients under the superintendence of a Surgeon during not less than Six Months, at a Hospital, General Dispensary, or Parochial or Union Infirmary recognised for this purpose, or in such other similar manner as, in the opinion of the Council, shall afford sufficient opportunity for the acquirement of Practical Surgery.

N.B. Blank Forms of the required Certificates may be obtained on application to the Secretary, and all such Certificates will be retained at the College.

The Examination of Candidates for the Diploma of Member of this College will be divided into two parts: the first relating to Anatomy and Physiology; the second relating to Pathology, Surgery, and Surgical Anatomy. The Examination on Anatomy and Physiology will be held in the months of April, May, July, November, and January. The Examination on Anatomy will be on the recently Dissected Subject, and on prepared parts of the Human Body. Candidates for these Examinations are required to signify their desire of being admitted thereto not less than one month previous to the period of examination. Students will be admitted to the First Examination after they have completed the Second Session of their Anatomical Studies.

Candidates for the Diploma will be required to produce one or other of the following Certificates: Of Graduation in Arts at a recognised University—Of an Examination for Matriculation; or such other Examination as shall, in either case, from time to time, be sanc-



tioned by the Council of this College, at a University in the United Kingdom ; or at a colonial or foreign University recognised by the Council of this College—Of having passed the Preliminary Examination for the Fellowship of this College ; or of the Colleges of Surgeons of Ireland or Scotland ; or of the Faculty of Physicians and Surgeons of Glasgow ; or of the Society of Apothecaries of London ; or of the Apothecaries' Hall of Ireland ; or the first-class Examination of the Royal College of Preceptors.

Candidates who shall not be able to produce one or other of the foregoing Certificates will be required to pass an Examination in English, Classics, and Mathematics ; conducted by the Board of Examiners of the Royal College of Preceptors.

The following are the subjects of the Examination, viz.

PART I. Reading aloud a passage from some English author.—Writing from dictation.—English Grammar.—Writing a short English composition ; such as a description of a place, an account of some useful or natural product, or the like.—Arithmetic. No candidate will be passed who does not show a competent knowledge of the first four rules, simple and compound, of Vulgar Fractions, and of Decimals.—Questions on the Geography of Europe, and particularly of the British Isles.—Questions on the outlines of English History, that is, the succession of the Sovereigns, and the leading events of each reign.—Euclid, Books I. and II.—Translation of a passage from the first book of Cæsar's Commentaries.

PART II. Papers will also be set on the following seven subjects, and each Candidate will be required to offer himself for examination on one subject at least, but no candidate will be examined on more than four : Greek.—French.—German.—Mathematics.—Mechanics.—Chemistry.—Botany and Zoology.

This Examination *must* be passed before the commencement of Professional study. It is at present held in June and December.

The commencement of professional study otherwise than by attendance on Lectures in recognised Medical Schools, or by attendance on the Practice of recognised Hospitals, will not be admitted until a Certificate thereof shall be furnished to the Secretary for registration at the College by the Practitioner whose Pupil the Candidate shall have become, or by the Medical Superintendent of the Hospital or other Institution to the practice of which he shall have entered ; and will consequently date only from the reception of such Certificate by the Secretary, the Certificate to be accompanied by proof of having passed the necessary Preliminary Examination in General Knowledge.

Every Candidate for the Fellowship will, in addition to the compulsory subjects of the Preliminary Examination, be required also to pass in Greek, French, and Algebra, unless he can bring proof of being a Graduate in Arts of a University recognised by the College, or of having passed an Examination in Arts required for graduation in Medicine at a University recognised for this purpose.



Before admission to the First Examination for the Fellowship, every Candidate is required to produce Certificates of having attended Anatomy and Physiology with Dissections during three Winter Sessions of six months, one Course of Lectures on Comparative Anatomy and Chemistry, and a three months' Course of Practical Chemistry, at a recognised School, and of having studied Practical Pharmacy for three months.

Before admission to the Final Examination he will be required to produce the following Certificates : 1. Of being twenty-five years of age. 2. Of having been for six years engaged in the acquirement of professional knowledge at recognised Hospitals and Schools, or if already a Member of the College, of having been so engaged for two years, in addition to the time required for the Diploma of Member. 3. Of having attended the several Courses of Lectures required of Members, with the addition of Medical Jurisprudence. 4. Of having attended Lectures on Operative Surgery, and performed Operations on the dead body under the Superintendence of the Teacher. 5. Of having attended the Surgical Practice of a recognised Hospital during four Winter and four Summer Sessions, and the Medical Practice during one Winter and one Summer Session. 6. Of having been House Surgeon or Dresser for not less than six months, after the completion of two years' Professional Study.

A Candidate who shall have taken by Examination the Degree of Bachelor or Master of Arts at a recognised University will be exempt from one year of Professional Study.

A Candidate who shall have been eight years a Member of the College will be exempt from the Preliminary Examination and the first part of the Professional Examination, on production of a Certificate signed by Three Fellows, that he is a fit and proper person, and has been engaged for eight years in the practice of the profession of Surgery.

*N.B. On and after the 1st of October 1868, all Candidates presenting themselves for the final Examination for the Diploma of Member of the College will be required to pass an Examination in Medicine at the College, or to produce a recognised Degree, Diploma, or License in Medicine, before receiving the Diploma.*

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## REGULATIONS OF THE SOCIETY OF APOTHECARIES.

Every Candidate for a Certificate of Qualification to practise as an Apothecary will be required to produce Testimonials—Of having passed a Preliminary Examination in Classics and Mathematics before the commencement of Professional Study—Of having served an Apprenticeship or Pupilage of not less than five years to a Practitioner

qualified by the Act of 1815—Of having attained the full age of twenty-one years—Of good moral conduct—And of having pursued a Course of Medical Study in conformity with the regulations of the Court.

Every Candidate must attend the following Lectures and Medical Practice during not less than three Winter and three Summer Sessions: each Winter Session to consist of not less than six months, and to commence not sooner than the 1st nor later than the 15th of October; and each Summer Session to extend from the 1st of May to the 31st of July.

FIRST YEAR. *Winter Session*—Chemistry; Anatomy and Physiology; Dissections. *Summer Session*—Materia Medica and Therapeutics; Botany; Practical Chemistry.

SECOND YEAR. *Winter Session*—Anatomy; Physiology; Dissections; Principles and Practice of Medicine; Clinical Medical Practice. *Summer Session*—Clinical Medical Practice; Midwifery and Diseases of Women and Children, with attendance on Cases (not less than 20); Forensic Medicine and Toxicology.

THIRD YEAR. *Winter Session*—Principles and Practice of Medicine; Clinical Lectures; Clinical Medical Practice; Demonstrations of Morbid Anatomy. *Summer Session*—Practical Midwifery and Vaccination; Morbid Anatomy; Clinical Medical Practice.

A Preliminary Examination in Arts is held in January, April, and September, for the Examination of Students prior to Registration, who cannot produce a Certificate of having graduated in Arts, or passed an Examination equivalent to that required by the College of Surgeons.

The Examination of Candidates for a Certificate of Qualification to practise as Apothecaries will be divided into two parts.

*First Examination*, which may be passed after the Second Winter Session (provided the Candidate has completed the nineteenth year of his age), will embrace the following subjects: Latin, including the Pharmacopœia and Physicians' Prescriptions; Anatomy; Physiology; General and Practical Chemistry; Botany; Materia Medica.

*Second Examination*, after the Third Winter Session (the five years' pupilage being completed): Practice of Medicine and Pathology; Midwifery, including the Diseases of Women and Children; Forensic Medicine and Toxicology.

## PRIZES AND SCHOLARSHIPS.

*List of Students of St. George's Hospital who have distinguished themselves in the Annual Examinations.*

AMESBURY, —. 1847-8.	BELLEW, H. W., Bengal Army. 1851-2; 1852-3; and 1853-4.
ANDREWS, HEN. CHAS., London. 1852-3; and 1853-4.	BELLEW, P. F., Bengal Army. 1851-2; and 1852-3.
ANNESLEY, J. C., Bengal Army. 1851-2; and 1852-3.	BEVISS, CHARLES, Leeds. 1860-1; and 1862-3.
ANDERSON, R. 1863-4.	BISSHOPP, H., Haslemere. 1837-8.
ANDERSON, W. J. 1844-5; and 1845-6.	BLAGDEN, J. A., Petworth. 1838-9.
ARDEN, H. A., Woodchester. 1840-1.	BLAGDEN, R., Stroud. 1846-7.
ARCHER, H. RAY, London. 1863-4.	BLENKINSOP, F. H. 1865-6.
ASH, W. 1856-7.	BOLTON, R. T. 1849-50; and 1850-1.
BABER, J., London. 1841-2.	BOWLES, R. L., Folkestone. 1853-4; 1854-5; 1855-6; and 1856-7.
BABER, E. C. 1867-8.	BOWLES, W. W. 1868-9.
BALY, J. S., Kentish Town. 1839-40.	BRABANT, F. H. 1868-9.
BANISTER, G., Bengal Army. 1839-40.	BRAYBROOKE, W. 1840-1.
BARNES, E. G. 1866-7; 1867-8; and 1868-9.	BRETT, F. C. 1864-5; 1865-6; and 1866-7.
BARNES, R., London.* 1840-1; and 1841-2.	BRIGHT, J. A. 1856-7; and 1857-8.
BARRATT, J. G., London. 1839-40.	BROWN, J. B. S. 1844-5.
BARRETT, H. 1863-4.	BUCKLE, H. B., Bengal Army. 1837-8.
BARTON, F. E., Dover. 1843-4; and 1844-5.	BUDD, JAMES. 1842-3; and 1844-5.
BATTEN, E. B. 1843-4; 1844-5; and 1845-6.	BULLOCK, E., London. 1839-40; and 1840-1.
BELLAMY, GEORGE, R.N. 1854-5; and 1855-6.	BULTEEL, CHRISTOPHER, Plymouth. 1851-2; and 1852-3.
	BYAM, S. H. 1867-8.

\* Obstetric Physician and Lecturer on Midwifery at St. Thomas's Hospital.



- CAMPBELL, J.  
1837-8.
- CANT, W. E.  
1863-4; and 1864-5.
- CARTER, H. V., Bombay Army.  
1848-9; 1849-50; and 1850-1.
- CHAMBERS, T. K., M.D. Oxon.\*  
1839-40.
- CHORLEY, W. F.  
1838-9.
- CHRISTIAN, J. G.  
1866-7.
- CLAPP, PRIDEAUX, R.N.  
1860-1.
- CLARKE, JOHN, London.†  
1842-3; and 1843-4.
- CLARKE, T., Banbury.  
1841-2.
- COE, R. W., Bristol.‡  
1843-4.
- COLLINS, J. C.  
1843-4.
- COLLISON, J. B., Bengal Army.  
1852-3.
- COLLYER, JAS., Minster.  
1855-6; and 1856-7.
- COOPER, G. F.  
1855-6; and 1856-7.
- COPESTAKE, T. G., Brailsford.  
1846-7.
- COPESTAKE, WALTER G., Derby.  
1855-6.
- CORNISH, W. R., Madras Army.  
1850-1; 1851-2; and 1853-4.
- COTTON, G. P.  
1858-9.
- COTTON, R. P., London.§  
1837-8; 1838-9; and 1840-1.
- COURTNEY, SYDNEY, Bengal Army.  
1853-4.
- COX, W. A.  
1865-6.
- CUNDY, OSBERT, London.  
1837-8; and 1838-9.
- DAY, FRANCIS, Madras Army.  
1849-50; and 1850-1.
- DAY, R. T.  
1837-8.
- DICKEN, PERRY, Ashby de la Zouch.  
1837-8.
- DICKINSON, W. H., M.D. Cantab.||  
1851-2; 1852-3; and 1853-4.
- DIXIE, W. F., Lutterworth.  
1846-7.
- DIXON, HENRY.  
1847-8; and 1848-9.
- DRIVER, G. V., London.  
1842-3.
- DRUITT, WM., Wimborne.  
1839-40; and 1840-1.
- DUDFIELD, T. ORME, Kensington.  
1858-9; 1859-60; and 1860-1.
- DUKA, THEODORE, Bengal Army.  
1851-2; and 1852-3.
- DUKE, F. W.  
1851-2.
- DUNCAN, THOMAS, Richmond.  
1851-2; and 1852-3.
- EARLE, GEORGE, Newbiggin.  
1849-50.
- EARLE, JOSEPH, Brentwood.  
1848-9; and 1849-50.
- EATON, JAMES, Grantham.  
1856-7; and 1857-8.
- EBSWORTH, A., London.  
1842-3.
- EDGELOW, T., London.  
1862-3; and 1863-4.
- EVANS, O. S.  
1848-9.

\* Formerly Physician to St. Mary's Hospital.

† Physician-Accoucheur to St. George's Hospital.

‡ Surgeon to General Hospital.

§ Physician to Hospital for Diseases of Chest, Brompton.

|| Assistant-Physician to St. George's Hospital, Physician to the Hospital for Sick Children.

EWENS, JOHN, Milton Abbas.  
1848-9; and 1849-50.

FIELD, A. G., Brighton.\*  
1840-1; and 1841-2.

FINCHAM, G. T., London.†  
1839-40.

FIRTH, W., H.M.S.  
1850-1.

FLETCHER, G. F.  
1842-3; and 1843-4.

FOLKARD, H., Bayswater.  
1848-9.

FOSTER, J. F., H.M.S.  
1863-4.

FOX, C. H., Bristol.  
1856-7.

FOX, E. L., Bristol.  
1856-7.

FREEBORN, R. F., Oxford.  
1843-4.

FULLER, H. W., M.D. Cantab.‡  
1841-2.

FULLER, W., London.  
1844-5; and 1846-7.

GARLAND, E. C., Yeovil.  
1852-3.

GEORGE, J.  
1842-3; 1843-4; and 1844-5.

GILLOW, W., Torquay.  
1843-4; and 1844-5.

GOODCHILD, F., Warwick.  
1847-8.

GOLDSMITH, G. P., Bedford.  
1856-7.

GOLDSMITH, S. J.  
1868-9.

GRIFFIN, —.  
1841-2.

GRIFFITHS, S. H.  
1839-40; 1840-1; and 1841-2.

GUAZZARONI, J. B.  
1843-4; and 1844-5.

GUNDRY, J. S., Honiton.  
1846-7.

HALDENBY, W., Reedness.  
1841-2.

HALSE, C., London.  
1851-2.

HARDING, EDWARD.  
1854-5; 1855-6; and 1856-7.

HARRISON, W., Skipton.  
1850-1.

HARRISON, G., London.  
1856-7.

HART, A. D., London.  
1855-6.

HASTINGS, C.  
1847-8.

HAWARD, J. W., London.  
1862-3.

HENERY, ED. T.  
1839-40.

HETT, H. N., Brigg, Lincolnshire.  
1855-6; and 1856-7.

HICKS, R., Baldock.  
1845-6.

HIGHMORE, W., Sherborne.  
1837-8.

HILBRIS, W.  
1838-9.

HOLL, H. B.  
1845-6; and 1846-7.

HOLLOWAY, J., H.M.S.  
1844-5; and 1845-6.

HOLROYD, W. S.  
1865-6; and 1866-7.

HOOPER, J. H.  
1853-4.

HOPE, WILLIAM.  
1860-1.

HOPKINS, G. H., Stone.  
1842-3.

HORNIDGE, T. K., London.  
1847-8; 1848-9; and 1849-50.

HOWSE, A.  
1845-6; 1847-8; and 1848-9.

\* Surgeon to St. Mary's Hospital, Brighton.

† Physician to Westminster Hospital.

‡ Physician to St. George's Hospital.

- HUTCHINSON, T. C.  
1837-8.
- HUTTON, C., L.R.C.P., London.\*  
1837-8.
- HUNT, ALFRED, Hammersmith.  
1852-3.
- HUNTER, G. Y., Madras Army.  
1850-1; and 1852-3.
- HUNTER, CHAS., London.  
1853-4; 1854-5; 1855-6; and 1857-60.
- ILES, F. H. W., Watford.  
1852-3.
- I'ANSON, T. F., Whitehaven.  
1844-5; and 1845-6.
- JACKSON, F. W.  
1865-6.
- JACKSON, E.  
1865-6.
- JANE, W., Newton Abbott.  
1850-1.
- JARVIS, R. F.  
1840-1; 1841-2; and 1842-3.
- JECKELL, P. B.  
1850-1.
- JOHNSON, ATHOL, Brighton.  
1840-1.
- JOHNSON, EDM., London.  
1839-40.
- JONES, C. H., M.B. Cantab.†  
1840-1.
- JONES, H. B., M.D. Cantab.‡  
1837-8; and 1838-9.
- KEENE, J., Hammersmith.  
1852-3; and 1853-4.
- KENYON, G. A.  
1864-5.
- KENYON, J. E.  
1864-5.
- KERR, J.  
1847-8.
- KING, GEORGE, Calne.  
1846-7.
- KINGSLEY, G. H.  
1841-2; and 1842-3.
- KITTOE, K.  
1838-9.
- KNIGHT, A. P., R.A.  
1852-3; and 1853-4.
- LAKE, G. R.  
1866-7; and 1867-8.
- LAKING, F. H.  
1864-5; 1865-6; and 1866-7.
- LANDON, H.  
1845-6.
- LANGHORN, JOSEPH, London.  
1860-1.
- LEE, H., London.§  
1837-8.
- LEE, FRED. F., Salisbury.  
1859-60.
- LEIGH, W., London.  
1863-4.
- LEWIS, H., Rickmansworth.  
1852-3; 1853-4; 1854-5; and 1855-6.
- LICHFIELD, W.  
1848-9; and 1849-50.
- LLOYD, A.  
1838-9; and 1839-40.
- LLOYD, J.  
1845-6.
- LLOYD, N. H., Truro.  
1860-1.
- LOMAX, W. J., Lincoln.  
1839-40.
- LOVEGROVE, T. H.  
1864-5; and 1866-7.
- MCCONNELL, J. F.  
1865-6.
- MACKAY, A. D.  
1852-3.

\* Physician-Accoucheur, General Lying-in Hospital.

† Physician to St. Mary's Hospital.

‡ Consulting Physician to St. George's Hospital.

§ Surgeon to St. George's Hospital.



- MAGRATH, M., R.N.  
1855-6.
- MALTON, C.  
1844-5.
- MANNING, FREDERICK N., R.N.  
1857-8; 1858-9; and 1859-60.
- MARLEY, R., Broomyard.  
1844-5.
- MARSHALL, E. J.  
1852-3; and 1853-4.
- MARTIN, E., Weston-super-Mare.  
1843-4.
- MAYNE, T. H.  
1846-7.
- MERRIMAN, J. J., Kensington.  
1847-8.
- MILLER, MICHAEL.  
1867-8.
- MITCHELL, JAS. I., Bath.  
1843-4.
- MORGAN, JOHN, London.  
1839-40; and 1840-1.
- MORRIS, C. J., Edmonton.  
1848-9.
- MOSELY, A., London.  
1856-7.
- NAYLER, G., London.  
1850-1; and 1851-2.
- NICHOLAS, E., London.  
1855-6.
- NICHOLLS, J., Wiveliscombe.  
1851-2.
- NOAD, H. C.  
1868-9.
- NORMAN, A. B.  
1867-8; and 1868-9.
- NORMAN, GEORGE.  
1865-6; and 1866-7.
- NOURSE, W. E. C., Brighton.  
1839-40; and 1840-1.
- OGLE, JOHN W., M.D. Oxon.\*  
1847-8.
- PAGE, W. IRVING.  
1859-60.
- PALMER, J. F.  
1868-9.
- PARKER, J. H., Whitchurch.  
1846-7; and 1848-9.
- PARNELL, L., London.  
1844-5; 1845-6; 1846-7; and 1847-8.
- PARRY, H. H., Allington.  
1855-6; and 1856-7.
- PENNY, J., Madras Army.  
1850-1; 1851-2; and 1852-3.
- PHILIPE, E. H.  
1843-4.
- POCOCK, W., London.  
1838-9; and 1839-40.
- PODE, C. C.  
1864-5; 1865-6; and 1866-7.
- POLLOCK, GEORGE D.†  
1837-8; and 1839-40.
- POLLOCK, H.  
1849-50.
- POMERY, J. R.  
1851-2.
- POPE, T. R., Hastings.  
1840-1.
- PRYTHERCH, J. D., H.M.S.  
1853-4.
- RICHARDSON, H. W. H.  
1838-9.
- RING, E. C., Kensington.  
1864-5; and 1865-6.
- ROBERTS, C., Dunster.  
1852-3; and 1853-4.
- ROBERTS, CHAS., York Dispensary.  
1856-7; and 1857-8.
- ROBERTS, W. P., London.  
1844-5; 1845-6; and 1846-7.
- ROGERS, G. G., London.  
1852-3.
- ROGERS, GEORGE L.  
1856-7.
- ROSS, J. T. C., Bengal Army.  
1843-4.
- ROUSE, JAMES, London.‡  
1846-7; and 1848-9.

\* Physician to St. George's Hospital.

† Surgeon to St. George's Hospital.

‡ Assistant-Surgeon to St. George's and the Ophthalmic Hospitals.

- ROWLAND, E. R.  
1867-8.
- ROYSTON, C., London.  
1849-50; 1850-1; and 1851-2.
- SANDON, J. H. B.  
1842-3; and 1845-6.
- SEATON, DANIEL, Oakham.  
1858.
- SIMS, FRANCIS M. B.  
1863-4; and 1865-6.
- SMITH, R. J.  
1837-8.
- SMITH, T. H., London.  
1842-3; 1843-4; and 1844-5.
- SMITH, HEYWOOD, M.A., M.B.  
Oxon.\*  
1862-3; and 1864-5.
- SOLTAU, W. F.  
1837-8.
- SPACKMAN, W., Wolverhampton.  
1841-2; and 1842-3.
- SPITTA, R. J., Clapham.  
1837-8; 1838-9; and 1839-40.
- STEVENS, W. B., R.N., Plymouth.  
1848-9; 1849-50; and 1850-1.
- STRADLING, W. A.  
1868-9.
- STRONG, H. J., Croydon.  
1852-3.
- SUTTON, WM., Dover.  
1853-4; 1854-5; and 1855-6.
- SYMES, J. G., Dorchester.  
1845-6.
- TATE, F. S., Louth.  
1841-2.
- TAYLOR, JOHN, Bayswater.  
1837-8.
- TEGART, ED., London.  
1841-2; and 1842-3.
- TEPPER, JOHN, London.  
1860-1; and 1861-2.
- THOMPSON, W., London.  
1846-7.
- THRUPP, J. G.  
1868-9.
- TINDALL, W. R.  
1863-4; and 1864-5.
- TOMLINSON, G. D., H.M.S.  
1856-7.
- TRIMNELL, G. F.  
1845-6.
- UNDERHILL, F. W., Tipton.  
1863-4; and 1864-5.
- UWINS, H.  
1840-1.
- VASEY, C. L., London.  
1867-8.
- VENNING, EDGCOMBE, 1st Life  
Guards.  
1855-6; and 1857-8.
- WADHAM, W., M.D., London.†  
1844-5.
- WALFORD, W. G., Hertford.  
1859-60.
- WALKER, EDWARD, H.M.S.  
1855-6; and 1856-7.
- WALKER, G. E.  
1867-8.
- WARDEN, C. J. H.  
1868-9.
- WASBROUGH, R., M.D., Westbury.  
1837-8.
- WATKINS, R. W., Towcester.  
1841-2.
- WATSON, G. S.  
1862-3; 1863-4; and 1864-5.
- WELLS, EDWARD, M.D. Oxon.,  
Reading.‡  
1838-9; and 1839-40.
- WHITE, ARTHUR, London.  
1839-40.
- WILLIAMS, W. J.  
1849-50; 1850-1; and 1851-2.
- WILLIS, J. H., Lewdown, Devon.  
1851-2; and 1852-3.
- WILSON, J. H. P.  
1866-7.
- WINTERBOTTOM, A.  
1868-9.
- WOODCOCK, E. W.  
1842-3.
- WOOLFES, I. A.  
1844-5.
- WOOLMER, S. E., London.  
1853-4.
- WYNDOWE, S. J., Madras Army.  
1850-1.
- WYNTER, H. B.  
1857-8.

\* Assistant-Physician to the Hospital for Women.

† Physician to St. George's Hospital.

‡ Physician Royal Berkshire Hospital.













